DOCUMENT RESUME

ED 126 857 95 IR 003 762

AUTHOR Brown, James W., Ed.
TITLE Nonprint Media Information Networking: Status and Potentials.
INSTITUTION Stanford Univ., Calif. ERIC Clearinghouse on Information Resources.
SPONS AGENCY National Inst. of Education (DHEW), Washington, D.C.
PUB DATE Aug 76
CONTRACT NIE-C-74-0027
NOTE 64p.; Concurrent Program Element of the Association for Educational Communications and Technology Annual Convention (Anaheim, California, March 30, 1976)
AVAILABLE FROM Box E, School of Education, Stanford University, Stanford, California 94305 ($2.75, Check made payable to BOX E must accompany order)

EDRS PRICE MF-$0.83 HC-$3.50 Plus Postage.
DESCRIPTORS *Audiovisual Aids; Computer Oriented Programs; *Conference Reports; *Data Bases; Filmographies; Films; *Information Networks; *Instructional Media; Media Selection; Networks; Publishing Industry; Selection; Seminars
IDENTIFIERS AECT 76; Association Educational Communications Technology

ABSTRACT

A seminar was held in March, 1976, at the Association for Educational Communications and Technology (AECT) Annual Convention to discuss the problems of nonprint media selection. The major question raised in the seminar was the extent to which an economical information system to provide qualitative as well as purely technical descriptions of educational media to users was possible. The concerns of users of such a system were addressed by a panel of participants from (1) an education/library group; (2) a United States Government group; (3) an entrepreneurial information group; and (4) a commercial publisher and data system entrepreneur group. The short papers that contain the viewpoints of the 16 panel members are collected for this report, along with an introduction, a summary of findings, a bibliography, and a directory of related organizations. (HAB)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ED126857

Nonprint Media Information Networking: Status and Potentials

James W. Brown, editor

August 1976

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

Published by the ERIC Clearinghouse on Information Resources,
Stanford Center for Research and Development in Teaching,
School of Education, Stanford University, Stanford, California 94305

IR003762

TABLE OF CONTENTS

I. BACKGROUND 1

Seminar Purpose 2
Selection of Participants 3
Seminar Management Plan 4

II. VIEWPOINTS: EDUCATION/LIBRARY USERS 5

The Educational Film Library Association's Contributions to Film Information, Stephen C. Johnson 6

Cooperation Unifies Film Centers, Will D. Philipson 9

AECT and Networking: A Status Report for 1976, Clint Wallington 11

Information About Nonprint Educational Media: The Consumer's Point of View, Robert E. Muller 14

A Process for Providing Information to Prospective Users for the Selection of Instructional Materials, Robert C. Gerletti 17

The Booklist and Access to Nonprint Data, Irene Wood 20

III. VIEWPOINTS: U.S. GOVERNMENT GROUP 23

National Audiovisual Center Information Services: An Overview, Jean McCauley 24

AVLINE: A Computer-Managed Reference File of Selected Educational Materials in the Health Sciences, Charles N. Farmer, Jr. 26

The National Instructional Materials Information System (NIMIS), Carl F. Oldsen 28

Nonprint Media Data Bases at the Library of Congress, Lenore S. Maruyama 32

IV. VIEWPOINTS: ENTREPRENEURIAL INFORMATION ORGANIZATIONS 34

National Information Center for Educational Media: A Brief Overview, M. Thomas Risner 35

MEDIAFILE: A Functioning Nonprint Data Base Operation, William J. Speed 38

EPIE Institute's Approach to the Nonprint Materials Information Problem, P. Kenneth Komoski 40

Media Review Digest: Computer Applications to Qualitative Media Information, C. Edward Wall 44

V. VIEWPOINTS: COMMERCIAL PUBLISHERS AND DATA SYSTEM ENTREPRENEURS 48

R. R. Bowker Company's Data Services and Systems Programs, Andrew H. Uszak 49

Computer Access to Nonprint Media Data: A Political, Not a Technical Problem, C. Walter Stone 51

VI. FINDINGS 54

APPENDIXES 56

Organizations Named 56
References 58

The material in this publication was prepared pursuant to a contract with the National Institute of Education, United States Department of Health, Education, and Welfare. Contractors undertaking such projects under government sponsorship are encouraged to express freely their judgement in professional and technical matters. Prior to publication, this manuscript was submitted to each of the writers whose papers are included for critical review and determination of professional competence. This publication has met such standards. Points of view or opinions, however, do not necessarily represent the official view or opinions of the National Institute of Education.

Prepared under Contract No. NIE-C-74-0027.

I. BACKGROUND

Library/media specialists, teachers, and others need help choosing nonprint media software for purchase, rental, or curricular use. Nearly always, educators need to ascertain *in advance* that considered items meet designated criteria. Unlike the print side of the media field, which through the years has developed an extensive array of useful bibliographic tools and services to meet this need, the nonprint media side has few such tools.

It is true that much has been written on the general subject of nonprint media selection, including recommended criteria and procedures. But several obstacles limit the ability to choose media with the consistent assurance that items selected meet educational requirements and standards. In the first place, the supply and variety of new nonprint media seems never to slow; funds to buy them seem never to be enough; and the need for dependable information about nonprint media compounds with the passage of time.

A further problem arises from efforts to provide individually tailored learning experiences to match student needs, interests, and abilities. The complications of media selection which have accompanied this emphasis on individualization are in direct contrast to those encountered by teachers when choosing items for large-group instruction.

Complaints regarding nonprint media selection practices take several tacks. From the user's point of view the following dissatisfactions are common:

* The speed and volume of nonprint educational media production in the United States creates a glut; there are simply too many items to keep up with, to know about, or to have bases for purchase, rental, or use.
* Information sources available to nonprint media purchasers, while helpful and better than those of a few years ago, vary in their up-to-dateness, cost, accuracy, availability, ease of use, and comprehensiveness.
* Almost without exception, these information sources are distributed as printed products--periodicals, serials, or one-shot productions. As a consequence, they are to some extent outdated even before they are printed.
* Even the purely *descriptive* information supplied by nonprint media producers themselves often tends to be incomplete, lacking such essential information as production date, results and uses of formative evaluation data, exact title, and cost.
* Much of the current information concerning *qualitative* characteristics of nonprint media is based solely on opinion (as opposed to objective evaluation and assessment). And that opinion is

generally of one person or group who may be neither expert in the subject nor aware of or sympathetic to the item's purpose and instructional design.

The rating (evaluating, assessing, and critiquing) of new media resources is itself a ticklish procedure. Producers of new products--usually with a promise of only limited returns--are understandably reluctant to see them downgraded by reviewers, however expert they may be. This is especially the case when such evaluations are made for purposes or audiences not envisaged in the original design of the products.

Many publishers and producers of nonprint educational media also believe that the worth of their product cannot be assessed appropriately apart from the particular situation, teacher, and student activities associated with its use. *How* an item is used, they say, is the key; poor utilization practices lead to poor results no matter how intrinsically good the item may have been judged.

For these and other reasons, then, large numbers of producers and consumers alike agree that there is no suitable substitute for requiring local pre-purchase previews, even though the practice is expensive, time-consuming, and cumbersome. Clearly, though, few of these producers and consumers would argue for the alternative of big-government "efficiencies" in regulating and controlling the production and purchase of nonprint media. Other more viable alternatives must be found.

It was with these and other similar problems in mind that the Seminar on Nonprint Media Information Networking was held as a concurrent program element of the national convention of the Association for Educational Communications and Technology, Anaheim, California (March 30, 1976). The ERIC Clearinghouse on Information Resources (ERIC/IR) at Stanford University acted as sponsor and host for the meeting.

Seminar Purpose

The purpose of the seminar was to draw upon the expertise and backgrounds of individuals representing significantly important facets of the educational media field as users or producers of information about the quality of nonprint instructional materials.

In its simplest form, the question addressed by the seminar participants was:

> *Is it possible (and desirable) to develop a compatible and economically feasible system capable of obtaining, storing, and selectively retrieving dependable qualitative (as well as technical or purely descriptive) data about specific nonprint media items?*

Pending development of a suitable answer to that question, several other sub-questions were to be considered:

> *If not, why not? If so, what should be the characteristics of such a system? How might it be organized, administered, and supported?*

Selection of Participants

It was decided at the outset that the sole concern of the ERIC Clearinghouse on Information Resources in sponsoring and managing the seminar was simply to serve as a catalyst--to bring together individuals representing several levels and types of interests manifested by professionals and organizations in the educational media field. ERIC/IR would have no preconceived point of view on answers to the above questions.

Four categories of participants were subsequently defined: (1) an education/library user group, (2) a U.S. Government group, (3) an entrepreneurial information group (media information producers), and (4) a commercial publisher and data system entrepreneur group. Participants and organizations represented were:

Education/Library Users

Stephen C. Johnson, President, Educational Film Library Association (EFLA)

Will D. Philipson, Chairman, Data Bank Committee, Consortium of University Film Centers (CUFC)

Clint Wallington, Director of Research and Communications, Association for Educational Communications and Technology (AECT)

Robert E. Muller, District Librarian, Jefferson Elementary School District, Daly City, California

Robert C. Gerletti, Director, Educational Media Services, Los Angeles County Schools

Irene Wood, Nonprint Reviews Editor, *Booklist* Magazine, American Library Association

U.S. Government Group

Jean McCauley, Chief, Information Branch, National Audiovisual Center, National Archives and Records Service

Charles N. Farmer, Jr., National Medical Audiovisual Center, National Library of Medicine

Carl F. Oldsen, Assistant Director, Information Services, National Center on Educational Media and Materials for the Handicapped (represented by Joseph Florio)

Lenore S. Maruyama, MARC Development Office, Library of Congress (represented by Vivian Schrader)

Entrepreneurial Information Group (Media Information Producers)

M. Thomas Risner, Director, National Information Center for Educational Media (NICEM)

William J. Speed, Audio-Visual Associates, Inc., publishers of *International Index to Multi-Media Information* and *MEDIAFILE*

P. Kenneth Komoski, President, EPIE (Educational Products Information Exchange Institute), "consumer's union"-like evaluations of media software and hardware, plus other product information-related services to member schools and colleges

C. Edward Wall, editor of *Media Review Digest* (unable to attend)

Commercial Publishers and Data System Entrepreneurs

David Biesel, Senior Editor, Macmillan Information, publishers of *Current Index to Journals in Education* (ERIC), *Thesaurus of ERIC Descriptors*, and related items

Andrew H. Uszak, Vice President, R. R. Bowker Company, director of computerized data base publishing including *Books in Print* and *Subject Guide to Books in Print*

C. Walter Stone, President, J-MARC, Inc.

Seminar Management Plan

It was the plan of the seminar that the discussion question be *explored*. Time (three hours) was much too short to expect definitive answers or plans. To obtain the most from the group in the allotted time and to provide time to exchange views and to elaborate points, each discussant was invited to express his or her views and to report nonprint media assessment activities or problems in a brief (1,000-word) paper. This paper was to be circulated to all participants prior to the seminar. An invitation also was extended to each participant to include in his or her paper concrete suggestions about ways to solve, or at least to ameliorate, qualitative nonprint media assessment problems. Writers were informed that seminar time would be provided to offer further information or to elaborate on points. Participants were urged to query each other and to take issue with and "piggy-back" on each others' ideas. Audience participation was expected to be relatively light; insofar as possible emphasis would be upon permitting seminar participants to hear each other and to exchange views.

II. VIEWPOINTS: EDUCATION/LIBRARY USERS

Six education/library users of available information about nonprint educational media resources expressed viewpoints first. Each speaker had been invited to describe the state of the art of obtaining, processing, and using such information in his or her organization or institution. Each was asked, too, to indicate why that particular organization chose the approach to data management that it did, to indicate areas of satisfaction or dissatisfaction with that approach, to suggest ways the system could be improved and, if appropriate, to indicate ways the organization might contribute to any media information system suggested as an outgrowth of the seminar.

THE EDUCATIONAL FILM LIBRARY ASSOCIATION'S CONTRIBUTIONS TO FILM INFORMATION

Stephen C. Johnson, President
Educational Film Library Association
New York, New York
(Director of Field Services, Audiovisual Center
Indiana University)

The 2,000 members of the Educational Film Library Association (EFLA) are divided rather evenly among institutions of higher education, schools, and public libraries-museums-community programmers. These institutions and individuals joined together in 1942 to provide for themselves several services not otherwise available. EFLA was founded and continues to flourish as a clearinghouse of information about the utility and availability of 16mm films, although it also conducts other related activities.

Provision of evaluative and descriptive information about films is pervasive throughout the entire EFLA program. Involved are such activities and services as: publication of *Sightlines*, the Association's quarterly membership magazine; sponsorship and management of the American Film Festival; a film evaluation service program; workshops and institutes for a continuing education program for EFLA members; a comprehensive publications program; a library and information-reference service; and a new preview series.

American Film Festival

The 800 or more educational films entered each year in the American Film Festival are evaluated by EFLA field juries prior to their being judged by panels of content, production, and utilization experts assembled in New York City. Descriptive and qualitative data about all films rated during this process are available now only in EFLA headquarters. The organization is negotiating with a commercial publisher to produce a new *EFLA Film Guide* in which data about Festival entries will be available on an annual or biannual basis.

Sightlines and Other EFLA Publications

EFLA's membership quarterly, *Sightlines*, regularly carries filmographies on special subjects prepared by experts. In addition, it features a pullout section which supplements the classic James Limbacher reference tool, *Feature Films on 8mm and 16mm*. "The Filmlist," a regular *Sightlines* feature, offers annotated, descriptive information about the availability of approximately 200 new films in each issue. It is indexed annually in *Sightlines*.

Other EFLA publications issued from time to time are designed to provide film evaluation, utilization, availability, and descriptive information to members and to others on topical and programmatic bases. Such topics as the following have been treated: the space age, films on war and peace, minority films, movies about movies, man and his environment, video and cable, films on death and dying, alternatives, American Issues Forum filmlist, and others. A handbook stressing the why and how of EFLA film evaluation also has been produced to guide and train members in the processes of creating and using such data.

EFLA Film Evaluation Service Program

EFLA's Film Evaluation Service Program, which provides members with reliable, usable descriptive and evaluative information about films, has been conducted for approximately 30 years. What has resulted from this effort is a cumulation of data about some 10,000 film titles compiled from reviews conducted by EFLA members throughout the country. Under this program, approximately 50 review committees now active in the field receive new film releases, review them using standardized EFLA procedures and criteria, and submit their results to EFLA headquarters. These data are then prepared in card packet form and mailed monthly to all EFLA members. They are indexed annually. Lack of funds has prohibited issuing a third supplement to the *Film Evaluation Guide* which, with the two preceding editions, would complete the publication of all EFLA evaluations between 1946 and 1974.

EFLA Workshops and Institutes

The principal EFLA workshop and institute activities have to do with establishing and refining film evaluation standards and procedures, film distribution management, film reviewing, or utilizing films. Recent emphases have been upon such topics as "personal cinema in public places," 16mm distribution practices of interest to filmmakers, alternatives in society, film library administration, film production, film evaluation, minority films, and films on war and peace. Each such program has resulted in a correlated publication containing detailed film information for distribution to the field.

EFLA Library and Information Reference Services

A professionally-staffed, response-oriented information referral system maintained in EFLA's New York headquarters features such media-related services as telephone reference, mail reference, publicity reference, film evaluation reference, and general media reference based on a model library which includes more than 600 books and standard reference tools, a file of more than 4,000 producers, a subject file of news releases, a similar filmography file, a film distributor catalog file, a vertical file of pertinent articles and literature, an equipment file, a periodicals resource collection of more than 150 titles, and card files for more than 50,000 EFLA, Library of Congress, American Film Festival, and other entries.

Preview Series: A Special Service

Private filmmakers seeking distributors for their productions often submit prints to EFLA headquarters, which then mails monthly catalog-entry listings of them to all service members as well as to non-theatrical film reviewers, to film programmers for museums and other potential showing locations and institutions, and to other interested persons subscribing to the service. Screenings of these films are held regularly in New York City.

* * *

EFLA continues to be alert to ways it can best serve its members and the field. Evaluations are currently under way regarding automatic data processing, electronic and microfiche techniques and equipment, and other developments offering alternative means of disseminating the nonprint data EFLA develops. The scope and efficiency of our services could be much increased by creation of

a national nonprint data base. Our own staff has discussed such a project and done some preliminary research on it, trying to determine what exists. We believe that what is now needed is a nonprint equivalent of *Books in Print*. To be truly useful, the proposed data base should provide access to films by *subject* as well as by *title* and *director*. We also believe that the only efficient way to compile an *accurate*, *comprehensive* data base is to start with the catalogs of the United States (and Canadian) distributors, then add data on independently-distributed films as that information becomes available. An alternative approach would be to obtain the cooperation of the United States Copyright Office and use copyright registrations as the data base. To attempt to build a national data base by combining existing data bases would only compound the problems.

EFLA is willing to cooperate with other agencies in seeking funding and working toward the establishment of such a national computerized nonprint data base.

COOPERATION UNIFIES FILM CENTERS

Will D. Philipson, Chairman
Data Bank Committee
Consortium of University Film Centers
(Director, Audiovisual Library Service,
University of Minnesota)

The Consortium of University Film Centers (CUFC) is a cooperative organization of 43 institutions of higher learning that maintains 16mm film rental libraries. CUFC institutions are now working together in efforts to raise standards and to solve certain film rental library problems that are common to all.

Film Locator Project

One of CUFC's most significant recent projects is its plan to publish what will be known as *The Film Locator* (Bowker and Company). It will list and describe *all* of the 16mm rental titles offered by all 43 Consortium member institutions. This is to be done because CUFC members believe it is necessary to bring together in a single authoritative volume essential data about 16mm films known to be distributed widely to users whom CUFC institutions have served for so long.

CUFC's Data Bank Committee, which has done much of the work on the *Film Locator* project, seeks through its efforts to raise standards and to systematize in desirable ways the development and utilization of film cataloging information. *Film Locator* listings will contain not only technical, descriptive, and utilization data for each title; they will also identify CUFC member institutions that hold one or two prints of it. This plan of operation will permit, among other things, transfer among members of rental requests that cannot be filled in one location because of prior bookings. To accomplish this, all CUFC members holding titles in question will be coded to facilitate a reference search to locate nearest convenient sources. The overall intent with respect to *Film Locator* listings will be to provide information needed by potential users to judge, in advance of preview, whether particular items are likely to suit their purposes.

Developing the Pool Plan

In developing the pool plan, Consortium members experienced a number of problems which are likely to encountered in any such cooperative endeavor to share data services. There was first the matter of obtaining member consensus to participate in the project. Other problems related to: seeking and obtaining full disclosure rights to each university's computer-stored film catalog data base; prioritizing the use of catalog entries by source; convincing a publisher to risk capital and to trade publishing expertise for cataloging expertise (itself valued, in this case, at $250,000); finding means to retain control of the data base for possible future utilization in other networks; and finally, working out a plan to share equitably any revenues that might accrue to the organization.

CUFC members are convinced that the plan that has emerged will provide a useful service to nonprint media users. They also believe that the standardized

data base that results will bring participating university film libraries close to automated networking as well as provide a potentially useful resource for other types of inter-institutional and inter-organizational cooperation which may be needed to effect any truly comprehensive nonprint data base operation in this country.

AECT AND NETWORKING: A STATUS REPORT FOR 1976

Clint Wallington
Director of Research and Communications
Association for Educational Communications
and Technology
Washington, D.C.

Someone asking for the policy of the Association for Educational Communications and Technology (AECT) on networks would get no answer--or several. One reason for this is that "networks" and "networking" cover an incredible range of topics, projects, and activities. AECT is involved in networking through its activities in the area of cable broadcasting, cataloging, dissemination of information about networks, and others. As various parts of the Association push forward in a number of different areas, the Association as a whole is beginning to pull things together to coordinate its work in the networking field.

The Language of Networks

One of the first things we have had to do is to come to grips with the language of networks and through that to examine the "kinds" of networking that exist. The numerous concepts referred to under the single label, "network," often make communication difficult. There seem to be at least five ways of describing and classifying networks. Any particular network may be described by one or more of the following:

* By name. This can be helpful but has distinct limitations. Describing ERIC/IR as part of the ERIC system helps only if you have the requisite background information about ERIC.
* By communications link or delivery mode. Knowing that someone has a teletype network or a computer network offers one common denominator for comparing networks and can tell some of the network's potentials and constraints. But this is of more interest to network planners than to users.
* By structure. Understanding how a network is organized--e.g., as a centralized data source or as a loose confederation of institutions--is of particular interest to network planners and administrators.
* By content or specialized purpose. Separating "medical information networks" from the "education" networks is critical from a user point of view. The same is true of separating networks with original source documents from networks with information about original sources. However, some confusion in describing a network by its content may arise when a network accesses a number of different content areas.
* By what the network interfaces or links together. That is, who talks to what? (Or what talks to whom?) Is it a network linking people...computers...special computer peripherals?

[The above descriptions are informal expansions from the article "Information Networks in Biomedicine" by William L. Millard in the *Journal of Biocommunications*, Vol. II, No. 3, November 1975, pp. 7-14.]

AECT and Networking

The foregoing descriptive classes are, indeed, rough. They are only starting points. But their value should be obvious. They allow the grouping of similar networks and help people to more clearly identify their own interest areas in networking. Using some sort of common terminology or descriptions will serve to reduce communication error. Clearing up terminology and related classification and description activities is becoming one of AECT's priority activities. Actually, almost *any* set of interconnections with flow can be called a network. Operationally, however, AECT's interests generally lie with networking that has most (if not all) of the following characteristics [as adapted from R.C. Swank's article, "Interlibrary Cooperation, Interlibrary Communications, and Information Networks--Explanation and Definition," pp. 18-26, in *Interlibrary Communications and Information Networks*, Chicago, Ill.: American Library Assn., 1971, 347pp.]:

* Users are geographically separated from the information they seek.
* An organized body of information is available; it may be in several different media formats.
* The organizational scheme employed permits users to locate needed information.
* Direct, two-way communications is provided between the user (or person accessing the information) and the information source.
* The information is delivered electronically.

The preceding elements more or less shape AECT's approach to the field of networking. AECT members' interests focus on networks dealing with the *content* area of education, media, and library science; on the use of networks for the *purpose* of delivering learning materials or modules as well as for assisting educators in research, in teaching, and in decision-making. Our members tend to show strong interest in the *interface* between network and user, as learners access a variety of media and a higher degree of interest in the electronic or computer-based network mode than in teletype networks. At this juncture, network *structure* does not seem to be of primary interest. We are interested in learners using both networks which give information about learning resources and networks which can deliver resources themselves.

AECT Networking Activities

How, then, are AECT members, committees, and staff involved in networking? Several activities may be mentioned. With the assistance of the USOE-funded Leadership in Library Education Institute (Florida State University), AECT has developed and is distributing a 35mm sound filmstrip, *Networks for Learning*. It presents basic information about networks, particularly as they relate to learners, learning resources, and instruction.

AECT maintains close ties with the National Commission on Libraries and Information Science (NCLIS), offering suggestions and comments and reviewing NCLIS output. It also works with the Educational Resources Information Center (ERIC) system, and especially with the ERIC Clearinghouse on Information Resources (Stanford University), helping to disseminate information, offering suggestions for activities, referring individuals and queries to the unit, and conducting joint projects. Contact is maintained with other ERIC Clearinghouses as well.

AECT's most recent networking activity was not intended primarily to be that. We have just released the 4th edition of *Standards for Cataloging Nonprint Materials*. Its rules were not designed specifically for use in cataloging materials in networks but there was a conscious attempt to make them usable for that purpose.

Still another AECT involvement with networking may be mentioned. The new National Center for Educational Statistics (NCES) handbook of terms and definitions in educational technology was developed for use in data collection for statistical purposes. However, as networks begin to collect and exchange information about educational technology, they need hierarchically-arranged standardized terms with mutually exclusive definitions. When developing the handbook for NCES, AECT was aware of the implications for networks but it did not consider the project a "networking project." Similarly, the AECT Committee on the Evaluation of Instructional Materials will consider standardizing ways of reporting materials evaluations. Though not actually a "network" committee, the committee's output could materially influence networks' content and procedures.

Currently, AECT is working with NCLIS to explore and develop a plan for a nationwide system--or "network"--for nonprint materials.

But by far the greater portion of AECT's networking involvements lies with individual member activities. These are the practitioners, the people who deal directly and specifically with networks of all kinds. It is the sum of these activities and concerns which moves and directs AECT in its relationship with the field. There is little doubt that networks will continue to increase in number, in coverage, and in sophistication of their organization and management. AECT's primary task is to do what it can to ensure that they reach their full potential in the service of media professionals, educators, and learners.

INFORMATION ABOUT NONPRINT EDUCATIONAL MEDIA: THE CONSUMER'S POINT OF VIEW

Robert E. Muller, District Librarian
Jefferson Elementary School District
Daly City, California

I presume that I am here speaking for the little guys, the school district library/media specialists, the librarians at the school building level. At the outset, there are some things you should understand about us. First, we tend to be interested mainly in the small, inexpensive media: filmstrips, study prints, recordings. These are the things we buy. We are not much into the film market. We get our films from a county or regional film library; they are too expensive for us to buy locally. The more exotic instructional media are even further from our everyday lives. Second, we tend to be isolated from much that you might think is available to us in the way of selection tools. They are available, yes, but they are located in district or county professional libraries, far removed from our worksites. Again, our financial resources are extremely limited, and getting to be more so. The lavishly financed media libraries that we read about are not really all that numerous; most of us have only a few hundred dollars for media, and it doesn't go far.

Our Main Problem

But perhaps our main problem is that so many of us tend not to have had very much experience in the nonprint media business. We are book-oriented librarians, and as such our backgrounds and experiences with audiovisual media are quite limited. Younger, newer school librarians may have had some new media coursework in library school, but even they have had relatively little actual experience with new media, at least in comparison with the experience they have had with books.

How are school librarians to acquire this experience? Our workload is already seriously overextended by all of the technical, administrative, professional, and teaching responsibilities of an institutional library that usually fall on the shoulders of just one person. So, being librarians, we turn for help to review journals, evaluative resources, and selection tools, and we find them distressingly meager, too often inadequate, and almost always priced beyond our means. Even a modestly good collection of book and media selection tools would take all of our materials budget. So we make do with relatively inadequate resources for selecting the few media we are able to buy.

How We Evaluate and Select Nonprint Media

A study of actual nonprint media evaluation and selection practices of our schools, and of buying habits with respect to them, would reveal interesting, perhaps shocking, information. I am sure we would find, for example, that the most important factors in selection decisions are statements in producers' catalogs and of persuasive sales representatives, combined with results of local previewing. We buy books from reviews others have done, and this poses us no problems. We have good, dependable reviewing sources; we know them and we trust them. If, occasionally, we goof with a useless or inappropriate book, it is a matter of only a few dollars. But with nonprint materials we can't afford to miss--as in buying an expensive set of useless filmstrips, for example. We have

not yet come to depend on media reviews, so we preview. Previewing is not only the traditional way of evaluating and selecting most audiovisual media, it is also a time-consuming process. Moreover, it limits access to the total range of media, and not incidentally, it is a process that is extremely expensive to the producer (and the cost, of course, is added to the price of the product). Local previewing is an inefficient selection method, since to do it right one must be familiar with the total range of materials available, which most media personnel are not. In addition, those who do the selecting ought to have had prior evaluative experience and training, which for most library/media personnel tends now to be less than adequate.

A Promising Practice

Here I should like to introduce a brief case report of a promising practice that may be of use to others who are faced with problems similar to those just discussed. Eight years ago, a group of building and district librarians in the San Francisco Bay area developed a new and practical approach to the local media reviewing process. We applied what we knew about book reviewing to the reviewing of nonprint media, and came up with a cooperative and workable procedure. With each of us doing a thorough evaluation of one, two, or three items each month, then sharing our efforts at monthly meetings, we obtain a working, hands-on knowledge of far more new materials than would have been possible had we continued to work alone. Besides this evaluative experience with newer media, each of us is now building up our general knowledge, developing an expertise in the total range of media, and learning much more about the process of evaluation itself. Our printed reviews have turned out to be invaluable reference resources not only as printed reviews, but as reminders of what we physically saw and heard.

I believe that, were this concept of cooperative media evaluation to be introduced and used much more widely than it is, we would see dramatic improvement in the quality of nonprint media collections. Cooperative evaluation helps solve several problems: It gives the library/media specialist a hands-on knowledge of more materials than he or she could review alone; it saves time by dividing the work; it provides an experience that can be trusted as one works cooperatively with capable peers; it provides greater exposure with less previewing cost for media producers to whom it also gives useful feedback about products, thus encouraging product improvement in the process. We do it with books, why not with nonprint media?

What Do We Need to Do?

What do I see after eight years of intensive work in media evaluation? What do we need to do the job better? First, I believe that we need local access to more comprehensive data about the nonprint media we consider for purchase or use. The computerized data bank envisioned by some participants in this seminar may well be the ultimate answer. But until we achieve that visionary development, we ought to improve existing local resources that are more within our reach.

For another thing, we desperately need improved bibliographic tools that we can afford to buy. The NICEM indexes have greatly increased their comprehensiveness since the earlier editions, but they still lack the authority to which librarians are accustomed. They would be considerably more useful now had their editors opted to use standard library subject headings (Sears or Library of Congress) instead of their rather awkward, too-broad catchword subjects.

If we are to work toward the eventual establishment of a multipurpose qualitative as well as technical data bank system to assist with the selection of all kinds of media, we must also develop and use more rigorously defined evaluative criteria. Perhaps what is needed is a whole new approach to evaluation, and more attention to instructional design of the media we consider than we give at the present time.

The building library/media specialist needs more ongoing, up-to-date evaluation/selection tools along the lines of the *Elementary School Library Collection*. One-shot publications that appear one month and are never updated are limited in their usefulness. They are quickly outdated in the rush of new productions. Comprehensive evaluative media selection tools are notably lacking at the secondary level; there aren't any.

Finally, we should recognize that producers' catalogs are still one of our most useful (and accessible) evaluation/selection tools. But they need improvement, too, especially with respect to such simple and obvious things as providing comprehensive and accurate descriptive data and alphabetical indexes. Perhaps the most important information that should be provided in producers' catalogs is the reporting of tryout and revision activities that are undertaken during the formative stages of a product to improve its impact.

Institutions now exist through which these and other needed changes could be achieved--NICEM, ERIC, EPIE, AECT, ALA, Library of Congress, Association of Media Producers, Association of American Publishers, and others. How do we get the effort organized?

A PROCESS FOR PROVIDING INFORMATION TO PROSPECTIVE USERS FOR THE SELECTION OF INSTRUCTIONAL MATERIALS

Robert C. Gerletti, Director
Educational Media Services
Los Angeles County Schools
Downey, California

The output in this country of instructional materials of all kinds is significant, and it continues to increase. In contemplating the phenomenon of growth in quantity of nonprint materials, in particular, and in attempting to work with it, several general concerns have developed.

Concerns About Media Selection

The principal concerns of those involved with the selection of nonprint instructional materials range from the cost of carrying out that activity to the need to guarantee that what is finally purchased will turn out to be worth the money spent on it--from the viewpoint of "educational returns." They may be summarized as follows:

* The cost of previewing is great. Despite this fact, however, the amount of previewing that is carried on continues to grow. This may be due, in part, to the very quantity of new nonprint media and to their sophistication (a verbal description may not be believed to describe adequately a visual production, for example). But probably it is due more to the fact that people feel "we must do it our way." Are there ways to reduce preview costs and still obtain reliable results in selection?

* New demands by some legislatures relative to legal compliances in areas such as minorities and sexism often add significantly to time and cost requirements to carry out selection. In some cases, lawyers are being employed to help screen materials. Does this mean that things are going too far?

* Roles of local boards of education with respect to selection are changing; they must often approve and adopt. What confidence can such groups have in the selection process used to propose materials for such purposes?

* In times of declining enrollment, shifting priorities, energy crisis, and other phenomena which affect the use and limitations on tax dollars, how do we stretch what we have? Do we create consortia through which to share, and thus spread, costs of educational media? Do we buy those materials whose costs are lowest? Has the time come when we should question "certain age-old standards" like "ten of these" (whatever) for each pupil as proper instructional management?

* How can we improve our selection criteria and the procedures through which we apply them? Can we afford the luxury of fuzzy criteria? Should we pay film prices for the presentation of content that should be in sound filmstrip form, for example?

* How can we reduce the cost of doing business? Decentralizing decisions with respect to media selection, for example, increases costs. (It may also put selection in the hands of individuals who are relatively inexperienced with the process and whose acquaintance with the full range of available media is quite limited.) Many producers are dropping distributors. Instead, they employ salesmen to go directly to individual schools, which may itself be a costly procedure.

* How can we collect dependable facts about learning and learning efficiency, especially with regard to contributions of media, and organize them into usable operational procedures that can be applied directly in instruction?

* Is it about time that we reassess readability formulas? Some people are known to use formulas that were developed in the 1930s and early 1940s. But should they? Are their formulas now out-of-date and thus invalid for today's sophisticated students? (Occasionally we also find that readability formulas are being used in judging audio materials, which seems a waste of time!)

* Can we make better utilization than we do of information we have concerning listening in the design, production, selection, and use of audio materials?

* Should there be more participation than there is by the general public in the selection of school media? Should this process be more systematized and more publicized than it now is?

Information Needed for the Selection Process

It is apparent that individuals involved in selecting instructional media require as much good, specific information as they can get--quickly and conveniently. The following needs are regarded as paramount for the purpose:

* Accurate producer information about products developed for the educational market. This information should be supplied to some central sources (such as the Library of Congress, NICEM, or EPIE) as soon as possible. At the earliest stage, the information supplied would be principally bibliographic, but it might also include the item purposes and data derived from already-completed formative studies undertaken by the producer to guide the design of the product. (Of course, editing of such statements may be expected to be necessary to keep them "factual.")

* Reports of field analyses (to be performed, insofar as possible, by qualified individuals in state, regional, county, and perhaps school district offices) which include: assessments of the technical quality of items; additional bibliographic data not furnished originally by the producer; comparisons of the new items with those already existing in the curriculum field; an EPIE-type analysis stating (a) item objectives; (b) the methodology of use called for; (c) item content description; (d) description of any evaluation process necessary to the use of the material; (e) noting of biases

(sex, ethnicity), if any; (f) assumptions implied regarding the world of work; (g) analysis of stated or implied values; and (h) quality of the item's packaging.

* Teacher analyses and use data. Information supplied to the computer should include reactions of teachers gathered through the use of simple forms designed for the purpose. Special attention should be given in them to the clarification of exactly what is meant by such ratings as "poor," "fair," "good," "excellent," and the like. Room should be left for free comments.

* Student reactions. These might be chiefly reports of the demonstrated results (and effects) of classroom use of the item. Reactions might be gathered through use of forms, audio recording, teacher observations, parent reactions, or other appropriate means. They would, of course, need to be summarized in some useful form to be of value to others contemplating possible adoption or use of the item.

* Reports of formal evaluation studies of the item, if available. An instructional evaluation model suitable for this purpose would ideally include: (a) identification of need for the item; (b) statement of the curriculum program goals for which the item is intended to be of use; (c) curriculum program content coverage; (d) listing of specific objectives the materials are intended to meet; (e) description of specific instructional methods/means/strategies necessary to obtain maximum benefit from using the item (as obtained from recommendations of producers and/or reviewers; and (f) suggestions regarding future revisions for the item.

* A workable, economically efficient information collection/dissemination system. This would require the designation and financial support of a central unit to gather the information previously mentioned, to process it according to plan, to store it in a computer, and to program the means of retrieving and making it available to interested users.

THE BOOKLIST AND ACCESS TO NONPRINT DATA

Irene Wood, Nonprint Reviews Editor
Booklist
American Library Association
Chicago, Illinois

From its beginnings in 1969 the *Booklist* nonprint reviewing program of the American Library Association has had as its purpose the publication of selected evaluative, critical reviews of recommended current nonprint materials for school and public libraries, as well as of complete and accurate technical bibliographic data for each reviewed item. It is, of course, the second goal that concerns us most at this colloquium. In this presentation, then, we will note what *Booklist* now does to assist media specialists to retrieve and classify nonprint data. In doing this, we will also note technical data *Booklist* contributes, and the situations and conditions that affect *Booklist's* ability to provide that information.

Indexing and Cataloging

Currently *Booklist* indexes every nonprint item reviewed in its media columns. Having always indexed 16mm films, filmstrips (previously all individual strips in a set, but now just filmstrip sets), and phonodisc recordings, the journal has, since September 1975, indexed videocassettes, multimedia kits, slides, recordings (cassette), and traveling educational exhibits as well. The only exception is in the case of such lists as *Women on Film*, which appeared in the January 1, 1976 issue. These are indexed in the semi-annual and annual cumulative indexes under "bibliographies." Individual titles within lists are not indexed.

In-house cataloging, providing appropriate Dewey Decimal System classification numbers and Library of Congress subject headings, is given for 16mm films, filmstrip sets, and phonodisc recordings reviewed in *Booklist*. In addition, Library of Congress card numbers are given for films, filmstrips, phonodisc recordings, and slides.

Technical Data Provided

On a purely practical basis, *Booklist* offers elementary bibliographic data about each item it reviews. This minor contribution to a data base includes titles, producer (if different from distributor), distributor and address, year of production, and year of release (if different from production). Data on format (for example, three filmstrips and two accompanying cassettes, or the contents of a multimedia kit) necessarily vary with each medium, but indicate running time in minutes (or frames for filmstrips). Sales price, rental price for 16mm film, availability in other formats, and order numbers complete the imprint information for each title.

Problems Faced

Numbers of problems are faced by *Booklist* in its effort to develop dependable nonprint media reviews. Inaccurate or contradictory information is of prime concern as a significant but elusive barrier to reliable *Booklist* imprints.

Because, in many cases, *Booklist* imprints are used by the Library of Congress to assign card numbers, our presentation of accurate data is especially important. But the following examples illustrate some concrete difficulties we encounter in attempting to do this. As one example, one 16mm film we were to review had three titles attributed to it--one on the press release, another on the film can label, and the third on the film itself. There is a not uncommon practice, also, of noting varying running times for sound filmstrips--an accompanying phonodisc may state that the running time is 12 and a fraction minutes while the teacher's guide may give it as 13 or "approximately 13 minutes." In such cases, one follows the rule of the trade and takes the information from the medium itself rather than from accompanying information. But what about the distributor who lists no running time on a recording, but gives the time only in a press release or teacher's guide? How accurate are these for ordering, cataloging, or, in an optional state, inputting data in a nonprint information network retrieval system?

Another hindrance to our offering complete bibliographic data is the lack of full coverage provided by the Library of Congress in its own catalog card program. The LC cataloging division, nonprint users, and the *Booklist* editorial staff all see the need for the availability of LC cards for such formats as audiotape cassettes, multimedia kits, and videocassettes. But because of lack of funding, such coverage is not now provided.

Still another kind of problem we face stems from an unavoidable time lag between the time a nonprint media item is submitted for review and the time of publication of the review. In the interval, prices may change. To avoid printing inaccurate price data, we have lately begun to double-check this and other technical information just ahead of the printing deadline.

Another of our problems derives from the fact that we need more hands and minds to do the work we have to do. Currently, all *Booklist* classification, indexing, and cataloging are done by a part-time staff cataloger. Although the work of this individual for the book section has been lessened by recent introduction of the Ohio College Library Center (OCLC) computer service and installation of an on-line terminal in the *Booklist* office, we still await introduction of nonprint titles into the OCLC system. Depending on which formats OCLC finally includes, such data is expected to provide greater standardization of and improved access to such information; it will also permit us to provide more comprehensive cataloging information for media formats that we do not now cover (multimedia kits and slides, for example).

Outlook

Perhaps the foregoing examples presented from the perspective of a reviewing journal serving both the distributor and the consumer may serve to illustrate facets of both the problems and the potential of a computer-based nonprint data base and network system. It is our conclusion that such a system is needed and that it is not an impossible task. As a beginning toward accomplishing this, nonprint producers and distributors must be impressed with the need to identify and present accurate, standardized technical data for their materials. Consumers and users must be motivated to demand such accuracy and completeness in data, and thus help convince distributors that such information is vital to the identification, acquisition, and retrieval of information about the enormous amount of media with which we must deal.

By participating in ongoing, problem-solving conferences such as this, and

by voicing the particular needs each of us has, perhaps the producers and distributors, the buyers and users, and those who bridge the information gap in between--the librarians, media specialists, evaluators, and indexers--will eventually aid the development of a comprehensive, current, and reliable data base-network from which all of us will profit.

III. VIEWPOINTS:
U.S. GOVERNMENT GROUP

The present media management and media information activities of four U.S. Government or government-funded agencies were discussed by the second group of seminar contributors.

NATIONAL AUDIOVISUAL CENTER INFORMATION SERVICES: AN OVERVIEW

Jean McCauley, Chief
Information Branch
National Audiovisual Center
Washington, D.C.

The National Audiovisual Center (NAC), an organization within the federal government, was established in July 1969 as the central distributor and information source for U.S. government-produced audiovisual materials. As such, it is a clearinghouse for information about and a central sales, rental, and free loan distribution point for government-produced audiovisual materials. In addition, it aids federal agencies in matters related to the production and distribution of their own audiovisual products.

Description of NAC Services

NAC provides program support for sales of all types of media, including 8mm and 16mm films, audiotapes, videotapes, slides, filmstrips, and others. At present, only 16mm films are rented from this source. It has recently been determined that free loan requests for films could be serviced better through commercial distributors and that NAC's chief contribution in this activity ought to be simply to maintain records of the placement and circulation of films placed in such service.

NAC's automated computer records system consists of three major computer tape files: (1) an inventory of NAC audiovisual media, with identification data of the federal agencies which have deposited them; (2) a file of media titles and catalog information (the "Master Data File") for 110 federal agencies that is capable of producing formatted printouts for use as search tools by the staff; and (3) an historic file containing titles of all items that have been recorded by NAC--which serves a number of purposes such as identifying duplicated titles or title numbers, controlling information required for computerized statistical reports dealing with loans, previews, and/or sales, and rentals of NAC products over certain time periods.

Revised NAC Missions

A recent report prepared at the request of the Office of Management and Budget recommended that NAC "establish a common data base, and develop a common indexing scheme, for all government audiovisual products which are available either to the public or to the government at large." At the same time that report was being written, NAC itself was conducting an in-house study of its own requirements for automatic data processing support of inventory, booking, and order-processing items for its collection. The common data base now called for requires that information about all federally-produced audiovisual materials be maintained by NAC, rather than only audiovisuals selected for marketing purposes, as was the previous practice. While this mandate will place an additional work load on the NAC staff, it will provide a useful source of data about government audiovisual media that is needed in the field. The fact that agencies will be expected to report contemplated or pre-completed production of audiovisuals will help to prevent duplication. These same agencies will be expected to search the NAC data base before launching into a new film production.

Information obtained from the NAC search will include contact names in other agencies in the process of filming the same or related subject(s). The system should also reduce unnecessary duplication of records concerning the scope and volume of federal publications.

Possible NAC Contributions of Evaluative Reviews

It is expected that NAC's principal contributions of evaluative media data will come through reviews of materials made by subject experts and educators. The present film cataloging system depends upon the agencies that produced the item for content descriptions and other review data. This often results in minimal attention to abstracting techniques and to the use of indexing terminology common to other branches of the information field. Future refinement and improvement of these processes is anticipated. At that time, it may be expected that greater attention will be given to product purposes, target audience characteristics and needs, and economic ramifications for quality evaluations.

An alternative to developing a system to produce qualitative evaluative reviews of NAC products would be to expand user-purchaser preview services provided by mail. But this method would involve inventory, scheduling, and storage considerations and would probably be quite expensive and unfeasible to carry out.

It cannot be expected that NAC will be capable of producing immediately any large numbers of evaluative reviews of government media. Organizing and collating product data reported by various agencies into an information system are some of the Center's prioritized activities, as well as the maintenance and distribution of these materials and their necessary transaction records. However, the new data management system now being designed will utilize the present operating procedures and at the same time will provide capabilities for meeting future requirements. One of these considerations will be the much-needed qualitative review services of the type being discussed and recommended at this seminar.

AVLINE: A COMPUTER-MANAGED REFERENCE FILE OF SELECTED EDUCATIONAL MATERIALS IN THE HEALTH SCIENCES

Charles N. Farmer, Jr.
National Medical Audiovisual Center
National Library of Medicine
Atlanta, Georgia

With the creation of new medical and dental schools in the late sixties and early seventies, new and advanced trends in education emerged, centered around individualization of curricula and multi-track approaches to education. These trends, coupled with the need to increase enrollment and manage explosion of new knowledge in the field, convinced many educators that the traditional textbook/lecture approach would have to be altered and supplemented. One approach to the solution of this problem has been the creation of a large body of audiovisual support and programmed learning materials. The volume of such instructional material has become so large and cumbersome as to be unmanageable.

In 1968, collaboration was begun between the National Library of Medicine (NLM) and the Association of American Medical Colleges (AAMC) to explore ways in which the academic medical community might assist in planning information services to be provided by NLM. A significant result of these efforts was the realization of a longtime goal of the Library--the development of a clearinghouse of information on nonprint instructional materials in the health sciences. The clearinghouse is located at the Library's National Medical Audiovisual Center in Atlanta.

AVLINE: How It Works

The objectives of the clearinghouse are to develop and maintain a system of bibliographic control for high quality nonprint educational materials and to inform health science educators of their availability. An important component of this system, known as AVLINE (Audiovisuals On-Line), is a remotely accessible computer-managed reference file that provides information about instructional materials that fulfill requirements specified by the user. Using MEDLINE (Medical Literature Analysis and Retrieval System-On-Line) terminals, a person is able to make a rapid search of recommended audiovisual educational materials in the health sciences. The information in AVLINE is accessible to the MEDLINE network and other users, as well as for the preparation of catalogs and special listings. The system also provides information to enable teachers to determine subject areas and concepts for which no acceptable teaching materials are available.

Steps in the AVLINE process include:

Identifying materials for inclusion in the system.

Appraising the materials.

Organizing the information.

Distributing the information.

Evaluating the system.

To identify newer materials, the AAMC Division of Educational Resources, in conjunction with the American Association of Dental Schools (AADS), initiated the Health Educational Materials Inventory. Survey forms were circulated to

obtain a list of materials being used in teaching programs, available for use by other schools, and available for review. The forms are received and processed by AAMC Atlanta staff and copies sent to the National Medical Audiovisual Center (NMAC). Descriptive information for each title identified is entered into the data base from which lists of materials can be selected for review. A variety of media formats are included, such as motion pictures, television tapes, slides, filmstrips, and audiotapes.

Appraising AVLINE Materials

The appraisal step, particularly that point at which AAMC review panelists assign a rating, is critical. Items "not recommended" will not progress in the system. The review includes appraisal by an educational design specialist, a media specialist, and usually four content experts nominated by constituent societies of AAMC or AADS. The review process, depending on the number and complexity of the materials, usually requires at least two days. Each panelist individually rates each title. All titles are appraised and rated on content validity, instructional design, and technical quality. The scale of ratings includes "highly recommended," "recommended," and "not recommended." An important aspect of the material is its teaching effectiveness. Plans are being developed to devise a mechanism for reporting such information.

After the materials are appraised by the review panel, information on the recommended titles is validated by NMAC staff to insure that descriptive information is accurate. NLM completes the information development by assigning subject headings, cataloging, indexing, and abstracting. Complete information on each title is then entered into the computer and becomes a part of AVLINE.

Materials that are "recommended" or "highly recommended" must be available nationally if they are to be included in AVLINE. The responsbility of the Library is to insure that these materials are available through its own resources, such as the free film or videotape loan programs at NMAC, or from other loan or sale sources, including the sales program of the National Audiovisual Center, General Services Administration.

AVLINE makes possible machine-generated searches for use by faculty, biomedical communicators, and learning resource centers in academic medical centers. Plans call for computer-printed catalogs, but the most useful service at present is the rapid search capability providing accurate information on the availability of high quality educational materials.

THE NATIONAL INSTRUCTIONAL MATERIALS INFORMATION SYSTEM (NIMIS)

Carl F. Oldsen
Assistant Director, Information Services
National Center on Educational Media and Materials
for the Handicapped
Ohio State University
Columbus, Ohio

The National Instructional Materials Information System (NIMIS) is a computer-based, on-line interactive retrieval system specifically developed to assist teachers, parents, and other educators in locating information about instructional materials in the broad field of special education. It is a project of the National Center on Educational Media and Materials for the Handicapped (NCEMMH) in conjunction with a number of Area Learning Resource Centers (ALRC) and Specialized Offices (SO). Together, these units represent components of the Learning Resource Center program of the U.S. Office of Education (USOE), Bureau of Education for the Handicapped.

Essentials of the NIMIS System

The NIMIS system has been designed to enable individuals to converse with a computer, asking questions and getting immediate answers. Answers are given in the form of information that includes bibliographic information and abstracts or descriptions of the material. Each NIMIS entry includes, if available, items of identification such as the following: author, title, publisher, price, and abstract/description.

Although this information can be obtained through terminals at the National Center on an instantaneous basis during the system's hours of operation, access is not limited to the availability of a nearby terminal. Information in NIMIS also will be available in print form. NCEMMH plans to send printed NIMIS bibliographies to the ALRCs and SOs, and to more than 700 local learning resource centers to ensure wide dissemination of this useful information. As NIMIS grows, periodic updated bibliographies will be prepared.

The first two NIMIS terminals were installed at the National Center during the summer, 1975. Additional terminals will be installed in different sites as the volume of requests rises and as the size of the data base increases.

The system is moving quickly through the transition stage from "in limited operation" to "in full operation." In the next year or two, links planned between NIMIS and various state and regional library catalog computerized networks are expected to make NIMIS even more widely available. This will be effected through the Ohio College Library Center (to be discussed later) and Tymshare networks.

First Such National System

In the past, various media information systems have been designed to serve persons working with handicapped learners. Some of them still remain in limited local or regional operation. Although many of them worked well independently, until now there has been no nationally coordinated system for identifying materials for the handicapped and for the sharing of common information about them across regional and state boundaries. However, a significant array of data exists concerning their identification, description, source, use, and technical develop-

ment. NIMIS represents a positive step toward obtaining, organizing, storing, and retrieving such information in a useful, cost efficient, accessible manner.

Materials Included in the NIMIS System

The NIMIS system has been designed to provide descriptive information about instructional media that will be useful to a nationwide audience. The system now contains information on two types of materials:

Child-use instructional materials--used by the teacher and/or child interacting in the process of education, diagnosis, instruction, and evaluation.

Teacher training materials--used to train or assist teachers or teachers-to-be in the selection, utilization, design, or adaption of media, materials, and educational technology (such as how to operate instructional equipment or how to make and use transparencies).

Eventually, data regarding two other types of instructional materials will be included in the system:

Measurement and evaluation materials--designed for use to evaluate, measure, and diagnose the current skills of handicapped children.

Prototype materials--experimental or one-of-a-kind items that have been developed as models for possible future development.

When NIMIS is in full operation, it is expected that about three-fourths of the entries will be for nonprint materials such as instructional kits, teaching machines and programs, films, video cassettes, audio cassettes, filmstrips, games, toys, or transparencies.

How Materials Get Into NIMIS

Specialized Offices employ experts in instructional problems who are well qualified to examine the thousands of items of media and materials considered for the system. These people prepare the information on child-use materials to be included in NIMIS, identifying, classifying, describing, and encoding them, and sending them to NCEMMH, where they are entered into the system.

NCEMMH also coordinates the development of common standards and procedures for the SOs and ALRCs to use in identifying and collecting system information. Every entry submitted by SOs and ALRCs is given a final check for consistency and adherence to standards by a NCEMMH technical editor before it is entered into the system.

Technical Considerations

The National Instructional Materials Information System is available via the Ohio College Library Center (OCLC) system, an on-line, shared cataloging network for libraries. Drawing from the individual participating libraries, MARC (Machine Readable Cataloging) records from the Library of Congress, and the National Center on Educational Media and Materials for the Handicapped, the OCLC data base currently consists of over 2 million items. As of this date, the National Center has input approximately 6,500 pieces of instructional material.

Discussion and Observations

The NIMIS requirements of a data base are specific yet many-faceted. It is

ultimately important that the base be searchable, that it be an information storage *and retrieval* system. It is equally important that it be possible to produce tapes of NIMIS records, since a primary NIMIS goal is to generate indexes and bibliographies of materials it holds. Other factors considered in extending the range of the NIMIS system were the potential production of microfiche, the availability of upper and lower case characters, field and format specifications, and circulation control capabilities. With respect to all of these matters, OCLC seemed the appropriate choice.

Other, unanticipated benefits came from this move. OCLC has expanded over the past five years to encompass a territory of over 22 states with 1,000 terminals in approximately 500 libraries. Thus NIMIS, too, has achieved an exposure not possible via a traditional, profit-oriented data base. Any member OCLC library has access to NIMIS records; any interested user is as close to the NIMIS data base as the nearest participating OCLC library.

Duplication of effort in the cataloging of these instructional materials is also reduced to a minimum with the OCLC arrangement. The major premise of OCLC being the sharing of cataloging records and information, the efforts of any library dealing with cataloging instructional materials are lessened with this on-line, interactive data base. NIMIS and NIMIS records are no exception. Not only does NIMIS get greater exposure through OCLC, it also gets a helping hand.

But, perhaps, the primary fringe benefit gained from cooperation with the OCLC system is the standardized format adopted and adhered to by member libraries. Each library enters data on a prescribed work form provided by OCLC which follows the MARC format used by the Library of Congress. There are presently two such formats: books and audiovisual/special instructional materials, with plans for a music and map format in development. By using these standardized and uniform formats, NIMIS records are not only compatible with Library of Congress records but they also conform with the bibliographic data controls and guidelines set by major library associations. This extracts from NIMIS materials the complete bibliographic information required by library standards and needed by teachers, and thus allows NIMIS users to understand NIMIS records with only a rudimentary knowledge of library practices.

This is not to say, however, that OCLC does not have its limitations or imperfections. Some inadequacy is merely "the other side of the coin," e.g. standardization can be restrictive and tends to diminish customized system development. Other deficiencies are simply idiosyncracies or characteristics of the network.

The greatest share of problems, under the present arrangement, stems from the fact that a prominent purpose of OCLC is to produce cards. The on-line cataloging affords libraries the opportunity to have cards printed with their own information in their preferred profile. NIMIS is not ultimately concerned with these aspects of catalog cards. Primarily, it seeks a system which will accomodate information storage and retrieval needs as well as the printing of various by-products. OCLC meets those requirements suitably and benefits NIMIS with the extras already discussed.

Overall, the sacrifices assumed by NIMIS in subscribing to the OCLC are subsumed in the advantages of OCLC over other data bases and existing systems. The potential for the dissemination of information in a standard, accepted format is one that is not to be taken lightly, particularly in the area of nonprint materials information.

To receive up-to-date news about the development of NIMIS, write to NCEMMH at the address given in the appendix and ask for a complimentary subscription to the NCEMMH newsletter, *Apropos*. Another helpful publication available from NCEMMH is "How to Use NIMIS: The Key to Information about Instructional Materials for the Handicapped," a 12-page brochure that describes NIMIS. In easy-to-understand terms aimed at teachers rather than librarians, it discusses the following topics: why special education teachers need NIMIS, what handicaps it covers, how it works, what types of materials it includes, and how to get answers from NIMIS by asking five key questions. The brochure also mentions the *Instructional Materials Thesaurus for Special Education*, third edition, which lists and explains the more than 800 NIMIS descriptors. The brochure contains a representative NIMIS abstract and lists the addresses of the 13 Area Learning Resource Centers where NIMIS terminals are to be located and from which further information may be obtained.

NONPRINT MEDIA DATA BASES AT

Lenore S. Maruyama
MARC Development Office
Library of Congress
Washington, D.C.

The Library of Congress' (LC) collection policies in the area of nonprint media are geared toward the acquisition of such materials for research purposes. On the other hand, its cataloging policies, particularly with respect to film and special instructional materials, are intended to provide cataloging records for libraries or organizations where the primary emphasis is not on research or archival needs but on requirements for the more general users, e.g., students, public library patrons, etc. This dichotomy is partially reflected in the nonprint media data bases and the machine-readable cataloging (MARC) records developed at the Library of Congress.

MARC Nonprint Media Formats

The following is a list of the MARC formats for nonprint media that have been issued:

Format	Coverage	Publication Date
Films	Film material (Motion pictures, filmstrips, slides, transparencies, videorecordings)	1971
Maps	Maps	1970
Music	Music scores Musical and nonmusical sound recordings (discs, open reel tapes, cassettes, cartridges, wire recordings, cylinders, piano or organ rolls, sound films)	In press

Distribution Services

The following is a list of the distribution services for machine-readable records that have been implemented by the Library of Congress:

Service	Number of records distributed	Date implemented
Films	32,043	1972
Maps	20,681	1973
Music	------	FY 1977 (if funding is approved)

In addition to distributing these machine-readable records on a subscription basis, the Library of Congress uses them to produce printed cards for maps and films and book catalogs (at this time, only *Films and Other Materials for Projection* is produced from MARC records), and for other aspects of technical processing control. We are also able to produce specialized listings on demand, such as a

printout in card form of Revolutionary War maps of Massachusetts, through the use of a retrieval program.

The distribution services and the development of machine-readable record formats are natural progressions of long-standing LC services, such as the distribution of cataloging copy or the work in standardizing cataloging rules. The advent of the MARC record itself, however, heralded a new era in bibliographic control because its design had to accomodate descriptions of all types of materials and be sufficiently flexible to be used as the basis for automating all kinds of library activities in a wide range of libraries and institutions. For these reasons, MARC records distributed by the Library of Congress are rich in detail, not only in terms of bibliographic content but also in terms of explicit identification of elements in the record to facilitate machine manipulation of these records.

Effects of MARC Services

In general, the dissemination of machine-readable records has had a profound effect in the area of technical processing for outside libraries. Through on-line networks and/or commercial vendors, they are now able to obtain cataloging copy and other products (such as spine labels or book pockets) much more quickly and efficiently than formerly. The automation of acquisitions and circulation functions has also been affected by the existence of these machine-readable records. So far, however, relatively little has been done by outside users in manipulating the detailed MARC record to produce specialized listings for reference functions. Since automated bibliographic control is essential before the retrieval function can be performed, most library users have chosen to implement the bibliographic control function first.

It should be noted that the existence of machine-readable records for film material has had very little impact on the outside user community except for the fact that the Library of Congress is able to produce its printed products (cards or book catalogs) more quickly and efficiently. Of the existing on-line library networks, only the Washington State Library network has the capability to input and process records for film material. The Ohio College Library Center is in the process of adding this capability. The users of film material appear to be unaware of the advances made because of the existence of MARC records, so that improvement of user access would entail more of an education process in the advances in technical processing brought about by the library networks such as the Washington Library Network, the Ohio College Library Center network, or BALLOTS (operating from Stanford University).

IV. VIEWPOINTS:
ENTREPRENEURIAL INFORMATION ORGANIZATIONS

Four individuals were invited to represent entrepreneurial information groups. William J. Speed was represented by an associate at the seminar, and C. Edward Wall was unable to be present.

NATIONAL INFORMATION CENTER FOR EDUCATIONAL MEDIA: A BRIEF OVERVIEW

M. Thomas Risner, Director
National Information Center for
Educational Media (NICEM)
University of Southern California
Los Angeles, California

In 1962, the University of Southern California began to experiment with various data processing techniques in an effort to solve some of the problems of cataloging and indexing information for nonprint educational materials, especially 16mm films. This work subsequently led to the Automated Cataloging Project (U.S. Office of Education-funded) involving computer-generated cataloging services for educational film libraries. At the conclusion of that project, there existed at the University a computerized data bank of approximately 12,000 16mm films for which there were main entries and descriptive information and the capability to produce indexes and catalogs from them on an automated basis. Since then, the University of Southern California has provided the necessary funding to continue to develop and expand the data base. In the process, the National Information Center for Educational Media (NICEM) was established (1966).

The NICEM Mission

The purposes of the National Information Center for Educational Media are:

* To continue to build a computerized data base through encoding information on nonprint educational media for all levels of education;
* To continue doing experimental and developmental work required to maintain NICEM as a national center for the management and dissemination of such information;
* To develop suitable publishing techniques to facilitate information dissemination in this aspect of the media field; and
* To continue to experiment with, refine, and provide computerized cataloging services for media centers and libraries.

NICEM Operations

NICEM acquires its information from three sources: (1) the Library of Congress (LC), (2) media producers and distributors, and (3) media centers and libraries. The integrity of the file is maintained through verification of information from the producer/distributor and the Library of Congress. The NICEM research and editorial staff maintains and consults extensive archival files of all documents dealing with nonbook educational materials. Criteria to guide the formating and arrangement of data in the data base itself are *Standards for Cataloging Nonprint Materials* (AECT) and *Anglo-American Cataloging Rules* (ALA).

Library of Congress data input to NICEM is based on an agreement entered into between it and the University of Southern California under which data supplied to LC from other sources will be used jointly by LC for the production of library cards and by NICEM for compiling computerized data banks for nonbook

educational materials. Under this arrangement, producers and/or distributors of nonbook media submit data to LC for their production, using a "Master Input Report Form" that assures proper cataloging of titles and subsequent encoding of information in the NICEM data bank and later publication of data in an appropriate NICEM index or updated supplement.

NICEM data bank input from media centers and libraries also helps to insure file completeness and accuracy. For example, in providing a custom book catalog service for nonbook materials (i.e., the automated preparation of camera-ready copy from which local nonbook catalogs may be printed), it is necessary to identify local holdings. An alphabetical title listing is forwarded to the catalog customer, who then identifies titles held locally and adds unique information (such as call numbers, audience level rating, and rental rates) for each item in the collection. NICEM input cards are then prepared for each title not already in the NICEM data bank, many of which represent local or regional productions previously unlisted in LC records.

The NICEM Record

NICEM has now expanded its data base to a current file containing nearly 500,000 main entries, each consisting of 1,000 characters of information. Our nonprint media data base includes, as of the first quarter, 1976, the following numbers of data entries for specific nonprint media:

16mm films	108,356
35mm filmstrips	73,892
8mm motion cartridges	36,157
Videotapes	24,238
Audiotapes	37,940
Disc recordings	35,878
Overhead transparencies	81,423
Slides	47,380
Producers and distributors	16,247
Total	461,511

Currently, NICEM publishes 14 indexes (in 20 volumes, for the 1976-1978 editions) for which the overall length is 18,000 pages of print. NICEM products are distributed to educational media centers and libraries scattered throughout the United States and the world. In all, nearly 10,000 institutions have purchased all or portions of our index series.

This year, NICEM's operations will include work on approximately 80 custom catalog contracts. We hope to place the entire 500,000-item data base on-line, using a sophisticated system first developed for the aerospace industry. We will continue to do special searches and analyses, and we also hope to work out an interface program for all nonprint materials, junior high school level and up, in several subject categories to be used by an armed forces group, in tape form, in training commands throughout the world.

Other future activities in which NICEM is expected to become involved include: (a) providing on-line access to the NICEM data bank; (b) providing a

complete nonprint data base on microfilm, with different media integrated by subject area; (c) providing local institutions with a data base about their own nonprint media holdings; (d) offering systems development and computer programming services to update and retrieve nonprint information data from local computer bases; and (e) providing updated data banks for institutions and retrieving such information for them, as requested.

The View from NICEM

We at NICEM do not foresee the economic viability of properly evaluating the 40,000 to 50,000 new nonprint media items that appear each year, nor do we anticipate any really significant changes occurring soon regarding techniques or approaches to producing and distributing them. Unfortunately, we live in an era that seems to permit only very little pre-planning in education. The vast majority of the planning of nonprint educational media appears to come "after the fact," i.e., when the media have already been produced. We agree with Leslie J. Briggs and his associates, who emphasized: "The choice of media to be employed in the classroom should take place before the items [media] are produced, not afterwards." We believe the NICEM data bank has a significant future role to play to remedy this situation.

MEDIAFILE: A FUNCTIONING NONPRINT DATA BASE OPERATION

William J. Speed
MEDIAFILE
Audio-Visual Associates, Inc.
Pasadena, California

MEDIAFILE offers as a nonprint media information system most of the services implied in the question which this seminar addresses. Currently, it: (1) obtains specific data about nonprint media items, and abstracts, catalogs, collates, and assigns it; (2) stores that data, using a sophisticated computer system; and (3) retrieves it selectively, employing combinations of tags, indicators, subfields, and fixed character sets that provide evaluative data (reviews, citations in utilization articles, papers, and similar sources) as well as descriptive data (from MARC records and other sources, using AECT/MARC tagging structure, pricing information, and AECT medium designators).

The MEDIAFILE Approach

MEDIAFILE was begun and is operated by working librarians, educators, and media professionals. This has inspired the particular approach taken by its parent firm, Audio-Visual Associates (AVA) of Pasadena, California.

MEDIAFILE started in 1968 because Audio-Visual Associates was not able to quickly and economically locate complete bibliographic and evaluative data on audiovisual resources. At least two existing data bases were available to AVA when it began operations, but a systematic analysis highlighted several problems inherent in using them: (1) item annotations were inadequate; (2) pricing information for purchase, lease/hire, or rental was not included; (3) subject headings were oriented towards scholarly research and not working librarians, teachers, or ordinary media users; and (4) neither source would provide camera-ready copy nor were automated interface options such as magnetic tape available. Hearing of no plans for change by these or other sources, AVA thus began building its own file of more complete, more usuable bibliographic and descriptive nonprint media records.

MEDIAFILE now has a data base of approximately 500,000 records, more than 20% of which are in machine readable format based on the AECT/MARC record structure. New records are selectively converted to machine readable form at the rate of some 20,000 per year. Converting and storing machine readable data that is seldom used is the bane of all data bases. Therefore, AVA's editorial staff has a firm program that weights all new records by format, subject, and basic integrity so as to minimize wasted conversion/storage factors of data base construction. Records placed in the machine readable data base are regularly modified to reflect the latest, most accurate information.

MEDIAFILE has been used to create three commercial publications: *The Film Review Index*, *The Media Literature Index*, and *The International Index to Multi-Media Information*. Over 8,000 volumes of *The Film Review Index* and *Multi-Media Information* have been purchased to date. The R.R. Bowker Company now markets a 1970-72 compilation of *The Film Review Index* and a second three-year compilation of it is nearing completion. An on-line search service for the nonprint media field is expected to be launched later this year.

MEDIAFILE can also be used to generate holdings catalogs, or select mediagraphies for educational institutions, libraries, government agencies, and business/industrial concerns. Currently, for example, we are developing just such a mediagraphy entirely in Spanish (citing only resources available in the Spanish language) for another country's use. AVA can produce such products in hardcopy or microform or in magnetic tape formated for phototypesetting or computer-produced microfilm applications.

Needed Changes

MEDIAFILE sees several important changes necessary to improve the quality of evaluative and bibliographic data for use by the educational/library community and its users:

1. MARC should be encouraged and funded to expand both in terms of quantity and media cataloged.
2. Reviewing sources should be encouraged to include more bibliographic data with their reviews.
3. Software producers and distributors should also be encouraged to offer more bibliographic data in their catalogs, including accurate production and release dates.
4. Everyone should get serious about "suggested audience levels" citations. Distributors who cite prenatal to afterlife applications for their products, and reviewers who only slightly tighten up such claims, need to exercise more care.
5. More information on what is needed, rather than simply on what is available, is essential to eliminate the follow-the-leader cycle so often seen. "Ecology", "metrics", and "women" are three examples.
6. Systematic union catalogs of networks should be developed in order to expand the availability of shared resources and to reduce agency costs for producing complete catalogs.

EPIE INSTITUTE'S APPROACH TO THE NONPRINT MATERIALS INFORMATION PROBLEM

P. Kenneth Komoski, President
Educational Products Information Exchange (EPIE) Institute
New York, New York

EPIE Institute (the Educational Products Information Exchange Institute) is a nonprofit, consumer-supported organization that is involved primarily in assessing educational media software and hardware products. It prepares numbers of in-depth reports for its members, covering such topics as overhead projectors, bilingual media resources, textbooks, individualized instruction systems, kits for early learning, new reading systems, career education materials, and many others.

The Nature of the Problem

With respect to the matter of nonprint educational media evaluation, which is the topic of this seminar, we should remember that it is only one part (actually the smaller part) of a much larger problem: The need to improve the quality of the teaching/learning activities that involve almost a quarter of this country's population for a large portion of their time during eight months of each year in a process known as "instruction." It is the quality of this instruction (and of the learning that results from it) that we are trying to improve, and we must maintain this perspective.

Twenty-five years ago, perhaps 25,000 instructional materials might have been available to the elementary and secondary schools of this country. Today, we are nearing 500,000, and we are pressed to cope with the increase. But even if during the next decade this growth curve were to plateau, as a result of conditions under which schools now function, it is unlikely that we would be able to cope *comprehensively* with the quantity problem. It is simply too great and too complex to accomplish in its entirety--on any feasible basis.

Still, because instructional tools of many kinds are used so widely to structure what goes on in classrooms and what students *do* to learn, consideration of ways to improve them are important--perhaps more so than at any other time in educational history.

An EPIE Study: A Possible Solution?

For the past two years, EPIE has been involved (with producers, purchasers, and users of media) in establishing a data base to focus as clearly as possible on the task of what happens in the hours at school as well as at home during which time students use one or another type of instructional material. To build this base, EPIE decided to study such activities at the school building level and the tools actually used there to teach reading, mathematics, social studies, and science in kindergarten through grade twelve.

We asked building principals and teachers in a stratified, randomly-selected sample of the country's 86,400 public school buildings--a sample which numbers just over 24,000 of that total--what instructional materials they currently use, the percentage of the time of each instructional period during which various categories of instructional materials are used, and the pattern of that utilization (e.g., what percentage of the time is devoted to printed textbooks/

workbooks/other books and what percentage to nonbook media, etc.). We sought also to discover how the materials that are used were selected, who selected them, where the money came from, and from how many *known* options they were chosen. To date, we have answers from teachers and/or principals in just under 38% of the more than 24,619 school buildings in our national sample.

Last spring EPIE also began a series of systematic visits to selected schools within our sample to make classroom observations and to perform in-depth interviews with principals, teachers, students, and parents--all related to materials used, how they are used, and how they are perceived by teachers, students, and parents. This spring, we will gather still more such information through a newly formed national network of representative school systems within our national sample. This activity will be continued on a regular basis during fall and spring 1976-77, and, if things go as planned, in an ongoing pattern every year thereafter. This is an expensive undertaking; it is being made possible through the generous support (so far, just under a half million dollars) of the Lilly Endowment (Indianapolis) and with the help of contributed services of scores of educators in local school systems, state agencies, and universities throughout the United States. Add to this the contributed time of teachers and principals who fill out questionnaires, willingly participate in interviews, and allow us to observe and to discuss the use of materials in their schools with students and parents, and the total size of the effort becomes difficult to measure in dollars and cents. These cooperating principals and teachers are enabling us to examine what materials are actually being used at the school building level throughout this country, and the first mentioned group of educators (i.e., those from schools, state agencies, and universities) are helping EPIE to analyze the instructional design of the materials that, thus far, have been reported as most used in classroom instruction (i.e., textbooks and other print-related instructional systems). It is these materials that teachers tell us they are using to structure about 60% of their students' instructional work each day.

While the task of analyzing the instructional design of these primarily print-based materials has been enormous, it has been, and continues to be, do-able. What also is proving do-able--although it is more difficult and dollar-consuming--is the gathering of in-depth information on the use and performance of the more frequently used print-based materials. The major reason these tasks are do-able, although formidable, is because there are (in the four basic skill areas we have studied thus far) some 6,000 titles, two-thirds of which seem to receive only marginal classroom use. (I say "*seem* to receive only marginal use" because we still consider our data preliminary, and this picture may change somewhat.)

When we turn to lesser-used materials (i.e., to the nonprint materials which are the chief concern of this seminar), the picture is encouraging in one respect and less so in another. First of all, let me report one finding that should be encouraging to advocates of nonprint media. To date, teachers in every state, in every size school system, within every level of community from impoverished to affluent, tell EPIE they use nonprint media to carry out approximately 35% of their students' instruction each day. This clearly indicates that these lesser-used materials are not as "lesser used" as some people might have supposed.

However, our findings to date also indicate that the percentage of the total nonprint media resources available to teachers and learners in their buildings or through district offices that are actually used with any frequency

in classroom instruction (or for that matter, outside the classroom, as in a media center or library) is relatively small. Indeed, it appears that only 30% of the materials readily available to teachers for classroom use are actually being used in any given year. There are, we think, good reasons for this. Some of these reasons we already know; others should become known as we expand our in-depth probing. Based on our teacher interviews and questionnaire responses, the major factor that seems to control the use of nonprint media in instruction is teacher time. This has to do, first, with the time a teacher has, outside of his or her classroom time, in which to become sufficiently familiar with nonprint media items to use them with confidence. Secondly, it has to do with the time within the classroom that can actually be devoted to the use of nonprint media. Given the realities of present-day teaching, will the average teacher (who is telling EPIE that 35% of classroom instruction is organized around the use of nonprint media) be expected to allot more time to using such media?

When teachers are given the responsibility to structure the learning society demands of schools, most of them tend to turn to materials that organize that task as straightforwardly and as comprehensively as possible. It is not surprising, therefore, to find that the majority of teachers are organizing classroom instruction around the use of programmatic instructional materials such as the print-based textbook or the kit-based teaching "system." However, it does appear that teachers recognize that such system-based or text-based instruction often needs to be relieved by, or to be supported by, uses of additional nonprint media. They evidently feel strongly enough about this that they are, indeed, using such nonprint media for just over one-third the available instructional time they spend with their students. But in order to use more such nonprint media it would be necessary to increase the amount of instructional time assigned to them and to reduce the instructional time assigned to print-based programs. But to do this teachers would also need to use considerably more time outside of the classroom to familiarize themselves with, to select, and to organize nonprint resources into a coherent and effective instructional program. For even though EPIE's analyses of the more widely used print-based programs also show many of them to be less than coherent in their instructional design, it is simply more realistic (given limited teacher time) for the average teacher to use them, rather than nonprint materials, for most of their instructional time. Furthermore, our site visit interviews seem to point to the fact that most nonprint materials simply do not provide the teacher with the sort of organizational support that would justify their use as the major (rather than a supporting) instructional role.

Qualitative Evaluation: How Much?

All this reminds us of the question: Is it necessary (or even wise, not to mention economically feasible) to attempt to provide in-depth information of both a descriptive and qualitative nature for each of the half million or so nonprint materials currently cataloged by NICEM? For our part, we believe the answer should be "no." EPIE feels that the following strategy is sound: We should not try to evaluate everything because everything not only isn't being used--everything simply *can't* be used. Any effort to evaluate everything is bound to be wasted; it is an impossible goal. Instead, we should concentrate on evaluating what teachers and students use--most widely. But of course we should at the same time also keep an eye on the innovative and the more thoroughly researched materials that are good but that may not yet be widely used. More attention should be given to process evaluation and to learner verification.

We should encourage the plowing back of what is learned about the quality and value of materials into the design of better products over a period of time. And we should encourage producers/publishers to use some income derived from their products to revise and improve them--and to help teachers and students to make better use of them--while they are on the market.

MEDIA REVIEW DIGEST: COMPUTER APPLICATIONS TO QUALITATIVE MEDIA INFORMATION

C. Edward Wall, Head Librarian
University of Michigan, Dearborn
(Editor, *Media Review Digest*
Ann Arbor, Michigan)

Media Review Digest (MRD) is designed as a selection, acquisitions, cataloging, and reference tool for all nonprint media. Those of us who have been involved with it have encountered numerous problems, as well as opportunities, in applying computer-related technology and software to input, organize, and retrieve the information with which it deals.

Background History

Media Review Digest was established in 1970 under the title *Multi-Media Review Index*, at which time it performed one function: It indexed reviews of educational and entertainment nonprint media. The first volume (1970) covered 10,000 reviews from 70 periodicals. This was expanded to 20,000 reviews from 130 periodicals for 1971 and to 30,000 reviews from 214 sources for 1972.

In 1973, *Media Review Digest* expanded greatly in terms of text content and with that increase, split into two volumes, one covering films, filmstrips, and miscellaneous media and the other records and tapes. These two parts each include an annual volume, separately published cumulative subject indexes, and three supplements. Part I is now divided into five elements: Films (which includes both educational and entertainment films in all formats as well as television programs and videotapes), Filmstrips, Miscellaneous Media, Film Awards and Prizes, Mediagraphies (consisting of filmographies and other bibliographies of media, arranged by subject and describing the contents of each). More recently a section on books has also been added.

Media Review Digest review citations are contributed by media specialists and librarians--most from the United States, but a few from foreign countries--who monitor assigned journals. They prepare index cards containing the title of the item; full review citations, including the reviewer's name, if given; and a code indicating the qualitative judgment of the review. A plus (+) stands for a favorable review, a minus (-) for a negative review, a plus/minus combination (+-) for a mixed review or an average valuation, while an asterisk (*) indicates a basically descriptive review. A full-time staff reviews all data, provides original cataloging, and directly indexes certain key journals.

The following typical information is provided for each "educational" entry: (1) title; (2) subtitle; (3) titles in series; (4) series title; (5) producer; (6) distributor; (7) date of release; (8) millimeter sizes; (9) running time; (10) sound or silent; (11) color or black and white; (12) price (added in 1975); (13) a description; (14) Library of Congress subject headings; (15) Dewey Decimal Classification numbers; (16) a general subject indicator; (17) audience level; (18) review citations including title of source, volume, issue, date, and page, reviewer's name, and the code (described above), and quotations from approximately one-quarter of all the reviews; and (19) award and prize citations. For feature films and other media sources, additional appropriate data are also

provided, such as: (20) film ratings by the U.S. Catholic Conference's Division for Film and Broadcasting, the Motion Picture Association of America, *PTA Magazine* (now discontinued), and *Parents Magazine*; and (21) foreign and/or alternative title references.

During 1973, *Media Review Digest* covered 40-45,000 review citations, quoted from approximately one-quarter of those reviews, and cataloged roughly as many nonprint items as did the Library of Congress. (In this respect it should be noted that MRD cataloging is based on reviews and evaluations of the media with back-up references to catalogs and brochures, while the Library of Congress performs its cataloging from data sheets provided by the producers of the media.)

Application of Data Elements

The above list of data elements is by no means complete, but it does include those most frequently employed in producing MRD. They also reflect fields of information that are of particular importance to the future development of MRD and its derivative publications. Many of these applications will be obvious, but are briefly reviewed here, as follows:

* Title information (1, 2, 3, 4, 21) is extensively cross-referenced within the MRD text, e.g., subtitles to titles, series titles to individual titles in the series if they have been evaluated separately and vice-versa, translated titles to original titles, etc. These fields of information perform several functions in addition to cross-references, such as the identification of entries that have been cited under variant titles, that might not otherwise have been located and consolidated with the main "cluster" of reviews.

* Mediagraphic data (5, 6, 7, 8, 9, 10, 11, 12) is essential to the identification of media characteristics, such as currency, appropriateness to a budget, application of format to existing equipment, and availability. MRD cumulative annual subject indexes also include a directory of producers and distributors. Data elements 5 and 6 spin off citations for this directory. Eventually MRD could also produce another index--one by producer or distributor citing their media covered in MRD for each producer and distributor. It is anticipated that several directories and guides may be produced from the basic data compiled by MRD. In this respect, a guide may limit its coverage to media produced later than a given year (element 7), media in only certain formats, e.g., videotapes or Super 8 loops (element 8), media shorter or longer than a certain time (element 9), only sound media or media in color (elements 10 and 11), or perhaps only media under a certain price (element 12).

* The description for each educational item occupies a field by itself. This allows its inclusion or exclusion in any context, as appropriate. The editors have further anticipated that these descriptions may have spin-off applications in the production of film catalogs for individual libraries, and other possible uses. With this consideration in mind, the length and thoroughness of descriptions is slowly being expanded.

* Subject indexes (14, 15, and 16) are produced on several levels. In the annual cumulative subject indexes for Part I and Part II, three index approaches are now provided. These include a detailed

alphabetical subject index based on Library of Congress subject headings (element 14). As many such headings are applied to each item as are deemed necessary to retrieve the item now as well as in future spin-off applications. In some cases, this may amount to twenty or more headings.

* Audience level (17) has potential not yet fully developed with *Media Review Digest*. MRD has anticipated producing indexes on a current basis that are broken down by audience level ranging from PreK to Adult, but these have not yet been implemented. In terms of derivative projects, this data element can result in such guides as the "Best New Media for Elementary Education," "Best New Media for Secondary Education," and other such publications.

* Evaluative information (18, 19, 20) is as critical to the effective identification and selection of media as any other data element in the opinion of MRD editors. To this end MRD has attempted to record the multiple opinions from different types of evaluative sources, namely: reviews, award and prize citations, and audience suitability rankings (these latter apply most frequently to feature length films).

* Film ratings (20) have particular importance to feature films, but also relate to many documentary and otherwise educational items.

Handling Review Data

MRD reviews of media are indexed from more than 200 reviewing services. Where permission is granted to quote from evaluative reviews, such quotes are included as appropriate; usually they are limited to 25 words or less. To be included, the quote must add something to understanding of the entry such as excellence, audience suitability, availability, etc.

Reviews are coded (element 18c) to indicate whether or not the item has been favorably or otherwise reviewed. MRD editors recognize the limitations of codes such as these, and at one time toyed with the idea of a 10-point range, or some other more elaborate scale than the one now employed. However, MRD adopted a simple four-element scale (+ positive, - negative, +- mixed or average, * descriptive) because it seemed to perform the long-range requirements that are desired of this field of information. Through either scanning the pages of MRD, or through computer searches, users can identify items that have generally (and repeatedly) received good reviews. MRD has adopted a similar method of highlighting awards and prizes information--that of assigning a "dagger" (†) to each such citation. The "dagger" and "plus" appear very similar to the eye and can also be easily located by a computer search to identify "outstanding" media.

Sources of reviews (element 18a) and reviewers' names (18b) are separate fields which will allow MRD to eventually sort reviews by source, identify who has written where (and when), and may provide other derivative future benefits.

The foregoing has been a basic outline of *Media Review Digest*--detailing its format, types of information covered, fields of information identified, and applications of data to present and future projects. In reality, the context of MRD is far more extensive and complex than this discussion reveals; it did not touch on records or tapes, for example, or on filmstrips or the complex area

known as Miscellaneous Media. All of the groupings offer unique problems and have their own potentialities. To really understand the present and derivative scope or potential of MRD one must use it to select and order media, to perform in-house cataloging, or to handle reference questions about media. In such applications, MRD's strengths and weaknesses and needed areas for further development will be revealed, and fields of data that need expansion and modification will be identified.

V. VIEWPOINTS: COMMERCIAL PUBLISHERS AND DATA SYSTEM ENTREPRENEURS

Three representatives of the commercial publishing and/or data system entrepreneurial field concluded the presentations at the seminar. Of these, David Biesel of Macmillan Information had been unable to prepare a summary paper in advance and so gave his remarks extemporaneously. They do not appear as part of the record.

R. R. BOWKER COMPANY'S DATA SERVICES AND SYSTEMS PROGRAMS

Andrew H. Uszak
Vice President
Data Services and Systems
R. R. Bowker Company
New York, New York

The Data Services Division of R. R. Bowker is totally involved in computerized data base publishing. Data base publishing, to describe it briefly, is the processing of bibliographic data from input to our system through final output in the form of composed pages ready for the printer.

Scope of Services

Data Services publishes monographic and serials indices used by the library, book trade, and publishing marketplace as primary acquisitions/ordering, reference, and cataloging tools. These publications have been produced to fulfill the needs of the various segments of our marketplace. Establishment of these needs has been and will continue to be done through meetings with representatives of each segment of the library, book trade, and publishing world. Feedback from customers is important to us in developing publications and services. Customer recommendations and suggestions have frequently resulted in the design and production of entirely new directories.

Books in Print, Subject Guide to Books in Print, and *Books in Print Supplement* are currently key products of Data Services. These publications are produced from large data bases of over 800,000 monographic and serials titles through the Bibliographic Information Publications Systems (BIPS), a system which we developed in 1970 and to which have been added enhancements to produce the many variations included in our directories. Our serials directories--*Ulrich's International Periodicals Directory, Irregular Serials and Annuals,* and *New Serial Titles*--are similarly produced by our system, as is *Subject Guide to New Serial Titles,* first issued in the fall of 1975.

BIPS Capabilities and Characteristics

The Bibliographic Information Publishing System (BIPS) was designed to provide flexibility and capabilities which were not available in the first generation bibliographic system used. The experience of producing directories with the first generation system was invaluable and aided in the development of BIPS. Some of the features of the present-day BIPS are as follows:

* Data validation by field; capitalization and punctuation by rules of logic.
* Parameterized selection routines to extract records from the file by various criteria from fixed coded areas and from various data elements.
* Capability to control transactions not only by record, but also by each data field, which at present can be a maximum of 192 possible fields per record.
* Statistical information provided for all types of transactions by publisher.

* Flexible parameterized routines to extract records required for a current or future directory and ability to easily change the output format.

* Search extractions to generate up to three output files, each different in format, during one computer run.

* Composition capabilities--through use of PAGECOMP, which was developed in conjunction with an outside service, to typeset pages for the output of BIPS and other systems. This program is flexible and permits the formatting of pages through the use of control cards which utilize many standard composition functions.

Each BIPS record is of variable length, containing up to a maximum of 192 variable length fields. There is a fixed portion to each record, consisting of record number, transaction codes, date, and sort key. Each field contains fixed information with transaction code, byte count, and date of transaction. This permits several groups of editorial personnel to work simultaneously on the same file for different purposes by controlling the transaction dates. Records are updated by field, based on a transaction sequence within date sequence whereby the latest date for a particular transaction takes precedence.

The physical file is maintained on magnetic tape, 1600 BPI, variable blocked format. Record size is 3,000 characters maximum and generally a physical record is equal to a logical record. When composite records are used, a logical record may consist of a maximum of 30 physical records, each containing a maximum of 3,000 characters. We currently have access to portions of our data base through a mini-computer disk system and are exploring the desirability of having our data bases totally on-line.

Future of BIPS

Portions of BIPS will be utilized in the future to provide audiovisual and bibliographic data banks. For example, the Consortium of University Film Centers (CUFC) and R. R. Bowker Company are planning to publish a new 16mm educational film directory to be known tentatively as the *Film Locator*. This directory will contain a combined list of the more than 30,000 16mm educational film titles available from the 43 members of the Consortium. Additionally, it will contain bibliographic, purchase, and rental information for each title. BIPS will be used to produce AV data base and output products of the program.

BIPS also will be utilized to provide data to other systems for various purposes. Although the system is not of a general nature, its capabilities for bibliographic and similar data are extensive. Only a small percentage of the possible system capabilities has been utilized so far.

COMPUTER ACCESS TO NONPRINT MEDIA DATA: A POLITICAL, NOT A TECHNICAL PROBLEM

C. Walter Stone, President
J-MARC, Inc.
Los Angeles, California

It was my assignment in 1974 to look into the AIMS (Automated Instructional Materials [Handling] System) Project managed by the Los Angeles City Unified School System (LACUSD) and funded by the U.S. Office of Education. My task (with James W. Brown) was to appraise results of this pioneering project, one goal of which was to develop a system to aid selection of school media by producing a data bank of evaluations (a goal not realized).

The AIMS Project

Conceived as a project a number of years ago and brought to life under the chairmanship of Mildred Frary, Director of School Libraries for the Los Angeles public schools (with others), the AIMS idea was to create an information storage and retrieval system for Los Angeles that would utilize computer technology to expedite the selection, ordering, distribution, and effective utilization of all instructional media in the city's 900+ schools and special programs. The Systems Development Corporation (SDC) of Santa Monica was responsible for major system design efforts. Representatives of several of the country's largest school systems (including New York, Chicago, Detroit, and Philadelphia) served as members of an advisory panel to identify problems, to review results, and to consider national implications of the project. The intention was also to develop, in time, a regional service program in cooperation with local school districts in California (chiefly southern California) to demonstrate the system's capabilities.

Eventually, a full system was conceived and developed in pilot form, but not without difficulties (including major reorganizations of both the Los Angeles City School District and of the SDC itself, both of which events delayed matters and changed responsibilities). For example, some responsibilities of the central library and audiovisual service units serving the schools were decentralized, thus shifting the locus of media selection responsibilities to individual schools and teachers rather than continuing them in a central administrative office. Nonetheless, the system was designed and, in my opinion, it was theoretically viable (granting the need for later changes which would reflect advancing technology).

Difficulties of Implementing AIMS

Despite the fact the AIMS did get designed and seemed at least theoretically viable for the purposes intended, it has not "flown." Why? In my view and omitting consideration of the District's own internal, albeit important, problems occasioned by proposals for changing operating procedures, there were four primary reasons why AIMS did not become the "national pilot" effort originally envisioned:

* First, the high costs of computer hardware and operations were more than the District could afford, given the recommendations put forward and the existing state of the art. The District budget could not stand

the load then suggested for AIMS support ($750,000/year in 1972). (Today, such costs would be different; but the system would have been modified and introduced in segments.) Also, central units could not afford the staff time needed for proposed evaluation activities.

* Second, a pooled local, regional, or national record of school system evaluations of individual materials (e.g., of given film titles) could not be produced and filed, nor would other districts (nor given schools within the Los Angeles District itself) agree fully to share such information and/or trust other schools' evaluation criteria and conclusions regarding nonprint media, in particular. Here, "everybody was an expert," it seemed (or perhaps no one was). And as always, with respect to evaluation, fear was generated, usually voiced by production people and distributors (and echoed by some librarians and audiovisual directors), in terms of threatening the continuance of current preview privileges or by raising cries against potential "censorship" in the schools.

* Next, multimedia correlating, although feasible to accomplish, was difficult to obtain (normally, only having been achieved with distinction as the consequence of special studies carried forward in restricted subject fields, such as those done by EPIE, for example).

* Fourth, the sheer size or mass of the effort required to do the job revealed itself to be a serious deterrent. With more than 90-100,000 16mm non-theatrical films alone to consider (not to mention other media and the fact that perhaps 5-10,000 new film titles which should be evaluated were being produced annually), the job was considered too big for a single district to mount and support or even for an intrastate region of modest size to do. And establishment of a cooperative support program for evaluation among larger city school districts across the country proved to be only a hope and without foundation in fact.

Thus, lacking a media evaluation component, the AIMS system design was completed, paid for, but not really implemented. It could have greatly expedited and improved LACUSD's media acquisition and distribution services. But without yielding evaluation data, the system would amount to little more than an accelerated and quite expensive means of creating and handling fiscal, inventory, and shipping records pertaining to school media. The heart of one original objective had been excised, and interest therefore flagged.

Is an AIMS System Needed?

We still need, but lack, the type of service AIMS might have given in California and, perhaps, nationally. Prerequisite computer systems, much improved today and far less costly in proportion to capabilities than then, have been with us for some time. But the problems of establishing and sharing their costs as well as their yield of media evaluation data still remain with us.

And so, my recommendations are simple to state, if not to implement. We should use and be grateful supporters of the fine work done and which continues to be done under the auspices of EFLA, *Landers Film Reviews*; EPIE, and the

various reviewing media as well as the invaluable lists of media produced by NICEM and other organizations. But we also should create arrangements requisite to making, filing, and sharing access (on whatever basis of confidentiality required) to a reservoir of school district-produced evaluations of instructional media. And to reduce both present and later costs for updating hardware components, perhaps we should contract through one or more existing computer service agencies to provide needed information and clearinghouse-like services on some suitable subscription fee basis. Setting up such programs may require state-level and/or federal agency endorsement. In California, and in certain other states, responsible implementation of the Media Evaluation Law, which requires evaluation data for all school media adopted, mandates (in my view) the creation of such an enterprise.

In closing, I should like to answer one criticism leveled at the recommendation just given as voiced by a senior school administrator: "There is no way," he said, "that we shall ever achieve school media evaluations which represent anything more than 'pooled prejudice'." Especially if this were true (which I do not believe), we should have available for inspection the range of judgments given nationwide by as many informed school personnel as possible, augmented by whatever research efforts have been or can be undertaken in both the public and private sectors to help with this problem.

VI. FINDINGS

In their face-to-face discussion at the AECT convention, and as a result of their later reactions to points of the papers, the ERIC/IR seminar participants arrived at some general agreements with regard to the original question.

> *Is it possible (and desirable) to develop a compatible and economically feasible system capable of obtaining, storing, and selectively retrieving dependable qualitative (as well as technical or purely descriptive) data about specific nonprint items?*

1. The question, as stated, turns out to be three questions: (1) Is it technically feasible to do this? (2) Will the field (producers, publishers, and users) agree to cooperate in providing input? (3) Will individuals and organizations spend the money required to support it?

2. It is technically possible to develop such a system, using only present technology. As a matter of fact, several such systems already in operation, some described in seminar papers, represent useful models. Near-future developments in the computer field may be expected to permit extension and improvement of present capabilities for this service.

3. Cooperation among various groups and organizations inputting to the new system should extend to such matters as: (a) examining areas of noncoverage and duplication of coverage and, in the latter case, avoiding unnecessary and wasteful redundancy; (b) standardizing the format details of input data records; (c) training evaluators and designers of evaluation systems; (d) seeking system financial support through grants, subscriptions, support of products sold, or other means; (e) refining standards and procedures, based on research and experience, to produce a data bank that is workable, dependable, and useful; (f) weeding and updating the data bank, as necessary; (g) cooperating with the Library of Congress, National Information Center for Educational Media (NICEM), and other units; and (h) highlighting emphases, analyses, products, and services. In these matters, attention should be given to capitalizing upon and inviting the continuing participation of individuals and organizations with records of prior work and data banks in the field.

4. Short of a rather dramatic increase in the number of users of such a system, it seems doubtful that it could be supported financially at the level of similar existing services. The 2-3,000 basic subscribers to certain of the larger current nonprint media information services, for example, would not be sufficient for this purpose. Needed is "consciousness raising" among thousands of other potential customers regarding the seriousness of the information problem that exists and the benefits to learning that could be derived from a larger and more comprehensive service.

5. The "compatibility" aspect of the problem--that is, the need to develop computerized data bases that can receive inputs of nonprint media assessments or evaluations from a variety of sources and in a number of formats, and, in turn, can exchange data base records with other systems--appears to be no problem. With some coordination of system inputs, and with some standardization of rating forms and reporting procedures, coupled with necessary training of evaluators to conduct assessments, this task should become more simple and more reliable than at present.

6. A greater prospect for the system's success would be assured by developing it on a base that is broader than nonprint media. By including nonprint media within other already-established print data base systems, for example, a capability would be established to output selective information drawn from as few or as many of the inputed sources as desired. The capability of such a system to produce truly multimedia listings of data built from contributions of media producers, teacher/student users, research reports, bibliographic reviewers, and others would constitute a valuable resource for the field.

7. To produce effective results and to establish a thoroughly viable nonprint media evaluative data base system will require the cooperative efforts of numerous private nonprofit educational associations and organizations, government agencies, businesses, and foundations. These groups must be encouraged to continue to input to and to use outputs of descriptive and evaluative data, according to their special needs and interests. This cooperation should have as its goal the reduction or elimination of some of the unnecessary overlaps of data bank activities and the provision of adequate coverage of all areas of interest.

APPENDIX: ORGANIZATIONS NAMED

American Library Association (ALA), 50 E. Huron Street, Chicago, Illinois 60611.

Association for Educational Communications and Technology (AECT), 1201 16th Street, N.W., Washington, D.C. 20036.

Association for Media Producers (AMP), 1707 L Street, N.W., Suite 515, Washington, D.C. 20036.

Audio-Visual Associates, Inc., 180 E. California Boulevard, Pasadena, California 91105.

AVLINE. See National Medical Audiovisual Center.

BALLOTS (Bibliographic Automation of Large Library Operations using a Time-sharing System), BALLOTS Center, Willow Trailer--SCIP, Stanford University, Stanford, California 94305.

Booklist. See American Library Association.

R. R. Bowker Company, 1180 Avenue of the Americas, New York, New York 10036.

Consortium of University Film Centers (CUFC), c/o Tom Boardman, Visual Aids Service, University of Illinois, 1325 S. Oak Street, Champaign, Illinois 61820.

Educational Film Library Association (EFLA), 17 W. 60th Street, New York, New York 10023.

Educational Products Information Exchange Institute (EPIE), 463 West Street, New York, New York 10014.

Educational Resources Information Center (ERIC), National Institute of Education, Office of Dissemination and Resources, Washington, D.C. 20208.

ERIC Clearinghouse on Information Resources (ERIC/IR), Stanford Center for Research and Development in Teaching, School of Education, Stanford University, Stanford, California 94305.

Jefferson Elementary School District, 101 Lincoln Avenue, Daly City, California 94015.

J-MARC, Inc., 8758 Holloway Drive, Los Angeles, California 90069.

Library of Congress (LC), MARC Development Office, 10 First Street, S.E., Washington, D.C. 20540.

Los Angeles County Schools, 9300 E. Imperial Highway, Downey, California 90242.

Macmillan Information, 866 Third Avenue, New York, New York 10022.

Media Review Digest (MRD), Pierian Press, P.O. Box 1808, Ann Arbor, Michigan 48106.

MEDIAFILE. See Audio-Visual Associates.

National Audiovisual Center (NAC), National Archives and Records Service, General Services Administration, Washington, D.C. 20409.

National Center on Educational Media and Materials for the Handicapped (NCEMMH), Ohio State University, 220 W. 12th Avenue, Columbus, Ohio 43210.

National Center for Educational Statistics (NCES), U.S. Office of Education, 400 Maryland Avenue, S.W., Washington, D.C. 20202.

National Commission on Libraries and Information Science (NCLIS), 1717 K Street, N.W., Washington, D.C. 20036.

National Information Center for Educational Media (NICEM), University of Southern California, University Park, Los Angeles, California 90007.

National Institute of Education (NIE), U.S. Department of Health, Education and Welfare, 1200 19th Street, N.W., Washington, D.C. 20208.

National Instructional Materials Information System (NIMIS). See National Center on Educational Media and Materials for the Handicapped.

National Library of Medicine (NLM), 8600 Rockville Pike, Bethesda, Maryland 20014.

National Medical Audiovisual Center (NMAC), 1600 Clifton Road, N.E., Atlanta, Georgia 30333.

Ohio College Library Center (OCLC), 1314 Kinnear Road, Columbus, Ohio 43212.

Washington Library Network (WLN), c/o Ms. Mary Jane Reed, Associate State Librarian for Research and Planning (Automation), Washington State Library, Olympia, Washington 98504.

APPENDIX: REFERENCES

American Film Festival Guide. New York: Educational Film Library Association, 1959-, annual.

Apropos. Columbus: National Center on Educational Media and Materials for the Handicapped, The Ohio State University, monthly. (Information, position papers, policies regarding NCEMMH.)

Asheim, Lester, and Sara I. Fenwick, eds. *Differentiating the Media* (Studies in Library Science). Chicago: University of Chicago Press, 1975.

The Booklist. Chicago: American Library Association, semi-monthly.

Books in Print 1975. New York: R. R. Bowker, 1975 (annual updates).

Books in Print Supplement: 1974-1975. New York: R. R. Bowker, 1975.

Current Index to Journals in Education. Educational Resources Information Center. New York: Macmillan Information, monthly.

Doak, Wesley A., and William J. Speed. *International Index to Multi-Media Information 1970-1972.* New York: R. R. Bowker, 1975. (Formerly called *Film Review Index.*)

Educational Technology: A Handbook of Standard Terminology and a Guide for Recording and Reporting Information About Educational Technology. Handbook X. National Center for Educational Statistics (DHEW). Washington, D.C.: U.S. Government Printing Office, 1975 (Stock #017-080-01502-1).

EFLA Evaluations. New York: Educational Film Library Association, monthly (card format).

EFLA Film Guide. See *American Film Festival Guide.*

Film Evaluation Guide, 3 vols. New York: Educational Film Library Association, 1965, 1968, 1972.

Film Locator. Projected publication beginning February 1977 by R. R. Bowker Company and the Consortium of University Film Centers, annual updates.

Film Review Index. See Doak, Wesley A.

Films, a MARC Format; Specifications for Magnetic Tapes Containing Catalog Records for Motion Pictures, Filmstrips, and Other Media Intended for Projection. Washington, D.C.: Library of Congress, 1970.

How to Use NIMIS: The Key to Information About Instructional Materials for the Handicapped. Columbus: National Center on Educational Media and Materials for the Handicapped, The Ohio State University, 1976.

Instructional Materials Thesaurus for Special Education. 3rd ed. Columbus: National Center on Educational Media and Materials for the Handicapped, The Ohio State University, 1976.

Irregular Serials and Annuals: An International Directory. 3rd ed. New York: R. R. Bowker, 1974.

Johnson, Jenny K. *Appraisal of Educational Materials for AVLINE: A Project of the Association of American Medical Colleges and National Library of Medicine.* Paper presented at the Health Education Media Association Conference, New Orleans, January 1976. 21pp. IR 003 232 (ED number not yet available).

Landers Film Reviews. Los Angeles: Landers Associates (Box 67960, Los Angeles, California 90069), monthly. (In-depth evaluative reviews of 16mm and 8mm films.)

Limbacher, James L. *Feature Films on 8mm and 16mm: A Directory of Feature Films Available for Rental, Sale, and Lease in the United States.* 4th ed. New York: R. R. Bowker, 1974.

Mayhew, Lewis B. *Computerized Networks Among Libraries and Universities: An Administrator's Overview.* Stanford, California: ERIC Clearinghouse on Information Resources, 1975. 76pp. ED 115 220 (83¢ microfiche, $4.67 photocopy). Also available from Box E, School of Education, Stanford University, Stanford, California 94305 ($3.00; check to "Box E" must accompany order).

A Selective Annotated Bibliography on Library Networking. Stanford, California: ERIC Clearinghouse on Information Resources, 1975. 27pp. ED 115 219 (83¢ microfiche, $2.06 photocopy). Also available from Box E, School of Education, Stanford University, Stanford, California 94305 ($1.50; check to "Box E" must accompany order). (Bibliography to accompany Mayhew, above.)

The Media Literature Index. Possible future regular publication. Two prototype issues published by Audio-Visual Associates, Inc., Los Angeles, 1974.

Media Programs: District and School. Chicago: American Association of School Librarians; Washington, D.C.: Association for Educational Communications and Technology, 1975.

Media Review Digest. Ann Arbor: Pierian Press, quarterly.

Millard, William L. "Information Networks in Biomedicine." *Journal of Biocommunications*, II (November, 1975), 7-14.

New Serial Titles 1950-1970, 4 vols. New York: R. R. Bowker, 1973.

New Serial Titles 1950-1970: Subject Guide, 2 vols. New York: R. R. Bowker, 1975.

NICEM Indexes. Los Angeles: National Information Center for Educational Media, updated periodically. Indexes are available on the following subjects:

16mm Educational Films
35mm Filmstrips
Educational Overhead Transparencies
Educational Audio Tapes
Educational Video Tapes
Educational Records
8mm Motion Cartridges
Educational Slides
Producers and Distributors
Ecology - Multimedia
Psychology - Multimedia
Vocational and Technical Education - Multimedia
Health and Safety Education - Multimedia
Black History and Studies - Multimedia

Selecting Media for Learning: Readings from Audiovisual Instruction. Washington, D.C.: Association for Educational Communications and Technology, 1974.

Sightlines. New York: Educational Film Library Association, quarterly.

Spaulding, C. Sumner, ed. *Anglo-American Cataloging Rules.* Chicago: American Library Association, 1967.

Subject Guide to Books in Print 1975, 2 vols. New York: R. R. Bowker, 1975 (annual updates).

Swank, R.C. "Interlibrary Cooperation, Interlibrary Communications, and Information Networks--Explanation and Definition." *Interlibrary Communications and Information Networks.* Edited by Joseph Becker. Chicago: American Library Association, 1972.

Thesaurus of ERIC Descriptors. 6th ed. Educational Resources Information Center. New York: Macmillan Information, 1975 (annual).

Tillin, Alma M., and William J. Quinly. *Standards for Cataloging Nonprint Materials. Fourth Edition. An Interpretation and Practical Application.* Washington, D.C.: Association for Educational Communications and Technology, 1976.

Ulrich's International Periodicals Directory. 16th ed. New York: R. R. Bowker, 1975.

Yarborough, Judith D. *Access to Nonprint Media: What Is and What May Be.* Stanford, California: ERIC Clearinghouse on Information Resources, 1976. Paper presented at the Association for Educational Communications and Technology Annual Meeting, Anaheim, California, March 31, 1976. 14pp. ED 119 743 (83¢ microfiche, $1.67 photocopy).

Items with ED numbers may be ordered from the ERIC Document Reproduction Service, P.O. Box 190, Arlington, Virginia 22210. Enclose a check for the listed microfiche or photocopy price, plus postage. For items with IR numbers, contact the ERIC Clearinghouse on Information Resources, or consult the relevant issue of Resources in Education.